



SEQUENCE LISTING

<110> Innogenetics N.V.

<120> New sequences of hepatitis C virus genotypes for diagnosis, prophylaxis and therapy

<130> 2551-117

<140> 09/873,224

<141> 2001-06-05

<150> 09/638,693

<151> 2000-08-15

<150> 08/362,455

<151> 1995-01-11

<150> PCT/EP94/01323

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<151> 1993-04-27

<150> EP-93.402019.9

<151> 1993-08-05

<160> 284

<170> PatentIn version 3.1

<210> 1

<211> 213

<212> DNA

<213> hepatitis C virus

<400> 1

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tatcgccgct gccgtgccag tggagttctg cctaccagct tcggcaacac aatcacttgc 120

tacatcaagg ccacagcggc tgcaagggcc gcaggcctcc ggaaccggga ctttcttgtc 180

tgcgagatg atctggctcg ggtggctgag agt

213

<210> 2

<211> 71

<212> PRT

<213> hepatitis C virus

<400> 2

Leu Thr Glu Arg Leu Tyr Cys Gly Gly Pro Met Phe Asn Ser Lys Gly
1 5 10 15

Ala Gln Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Leu Pro Thr
20 25 30

Ser Phe Gly Asn Thr Ile Thr Cys Tyr Ile Lys Ala Thr Ala Ala Ala
35 40 45

Arg Ala Ala Gly Leu Arg Asn Pro Asp Phe Leu Val Cys Gly Asp Asp
50 55 60

Leu Val Val Val Ala Glu Ser
65 70

<210> 3

<211> 213

<212> DNA

<213> hepatitis C virus

<400> 3

ctcacggaac ggctttactg cgggggcccct atgttcaaca gcaagggggc ccagtgtggt 60

tatcgccgct gccgtgccag tggagttctg cctaccagct tcggcaacac aatcacttgc 120

tacatcaagg ccacagcggc tgcaagggcc gcaggcctcc ggaaccggga ctttcttgtc 180

tgcgagatg atctggctcg ggtggctgag agt 213

<210> 4

<211> 71

<212> PRT

<213> hepatitis C virus

<400> 4

Leu Thr Glu Arg Leu Tyr Cys Gly Gly Pro Met Phe Asn Ser Lys Gly
1 5 10 15

Ala Gln Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Leu Pro Thr
20 25 30

Ser Phe Gly Asn Thr Ile Thr Cys Tyr Ile Lys Ala Thr Ala Ala Ala
35 40 45

Lys Ala Ala Gly Leu Arg Asn Pro Asp Phe Leu Val Cys Gly Asp Asp
50 55 60

Leu Val Val Val Ala Glu Ser
65 70

<210> 5

<211> 213

<212> DNA

<213> hepatitis C virus

<400> 5

ctcacggagc ggctttactg cgggggccct atgtttaaca gcaagggggc ccagtgtggt 60
tatcgccgtt gccgtgccag tggagttctg cctaccagct tcggcaacac aatcacttgt 120
tacatcaaag ccacagcggc cgcaaaagcc gcaggcctcc ggagcccgga ctttcttgtc 180
tgcgagatg atctggtcgt ggtggctgag agt 213

<210> 6

<211> 71

<212> PRT

<213> hepatitis C virus

<400> 6

Leu Thr Glu Arg Leu Tyr Cys Gly Gly Pro Met Phe Asn Ser Lys Gly
1 5 10 15

Ala Gln Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Leu Pro Thr
20 25 30

Ser Phe Gly Asn Thr Ile Thr Cys Tyr Ile Lys Ala Thr Ala Ala Ala
35 40 45

Lys Ala Ala Gly Leu Arg Ser Pro Asp Phe Leu Val Cys Gly Asp Asp
50 55 60

Leu Val Val Val Ala Glu Ser
65 70

<210> 7

<211> 213

<212> DNA

<213> hepatitis C virus

<400> 7

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tatcgccgtt gccgtgccag tggagttctg cctaccagct tcggcaacac aatcacttgt 120
tacatcaaag ccacagcggc cgcaaaagcc gcaggcctcc ggagcccgga ctttcttgtc 180
tgcgagatg atctggtcgt ggtggctgag agt 213

<210> 8

<211> 71

<212> PRT

<213> hepatitis C virus

<400> 8

Leu Thr Glu Arg Leu Tyr Cys Gly Gly Pro Met Phe Asn Ser Lys Gly
 1 5 10 15

Ala Gln Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Leu Pro Thr
 20 25 30

Ser Phe Gly Asn Thr Ile Thr Cys Tyr Ile Lys Ala Thr Ala Ala Ala
 35 40 45

Lys Ala Ala Gly Leu Arg Ser Pro Asp Phe Leu Val Cys Gly Asp Asp
 50 55 60

Leu Val Val Val Ala Glu Ser
 65 70

<210> 9

<211> 213

<212> DNA

<213> hepatitis C virus

<400> 9
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 tatcgccgtt gtcgtgccag tggagttctg cctaccagtt tcggcaacac aatcacttgt 120
 tacatcaagg ccacagcggc tgcaaaagcc gcaggcctcc ggaacccgga ctttcttgtt 180
 tgcgagatg atttggtcgt ggtggctgag agt 213

<210> 10

<211> 71

<212> PRT

<213> hepatitis C virus

<400> 10

Leu Thr Glu Arg Leu Tyr Cys Gly Gly Pro Met Phe Asn Ser Lys Gly
 1 5 10 15

Ala Gln Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Leu Pro Thr
 20 25 30

Ser Phe Gly Asn Thr Ile Thr Cys Tyr Ile Lys Ala Thr Ala Ala Ala
 35 40 45

Lys Ala Ala Gly Leu Arg Asn Pro Asp Phe Leu Val Cys Gly Asp Asp
 50 55 60

Leu Val Val Val Ala Glu Ser
 65 70

<210> 11

<211> 213

<212> DNA

<213> hepatitis C virus

<400> 11

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 tatcgccgtt gtcgtgccag tggagtctg cctaccagtt tcggcaacac aatcacttgt 120
 tacatcaagg ccacagcggc tgcaaaagcc gcaggcctcc ggaaccgga ctttcttggt 180
 tgcggagatg atttggtcgt ggtggctgag agt 213

<210> 12

<211> 71

<212> PRT

<213> hepatitis C virus

<400> 12

Leu Thr Glu Arg Leu Tyr Cys Gly Gly Pro Met Phe Asn Ser Lys Gly
 1 5 10 15

Ala Gln Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Leu Pro Thr
 20 25 30

Ser Phe Gly Asn Thr Ile Thr Cys Tyr Ile Lys Ala Thr Ala Ala Ala

35

40

45

Lys Ala Ala Gly Leu Arg Asn Pro Asp Phe Leu Val Cys Gly Asp Asp
 50 55 60

Leu Val Val Val Ala Glu Ser
 65 70

<210> 13

<211> 541

<212> DNA

<213> hepatitis C virus

<400> 13

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 tgctctgttc tcttgcttaa tccatccagc agctagtcta gagtggcgga acacgtctgg 180
 cctctatgtc cttaccaacg actgttccaa tagcagtatt gtgtatgagg ccgatgacgt 240
 tattctgcac acacccggct gtgtaccttg tggtcaggac ggtaatacat ctgctgtctg 300
 gaccccgatg acacctacag tggcagtcag gtacgtcgga gcaaccaccg cttcgatacg 360
 caggcatgta gacatgttgg tgggcgcggc cacgatgtgc tctgctctct acgtgggtga 420
 tatgtgtggg gccgtcttcc tcgtgggaca agccttcacg ttcagacctc gtcgccatca 480
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<210> 14

<211> 180

<212> PRT

<213> hepatitis C virus

<400> 14

Val Gly Ala Pro Val Gly Gly Val Ala Arg Ala Leu Ala His Gly Val
 1 5 10 15

Arg Ala Leu Glu Asp Gly Ile Asn Phe Ala Thr Gly Asn Leu Pro Gly
20 25 30

Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu Phe Ser Cys Leu Ile His
35 40 45

Pro Ala Ala Ser Leu Glu Trp Arg Asn Thr Ser Gly Leu Tyr Val Leu
50 55 60

Thr Asn Asp Cys Ser Asn Ser Ser Ile Val Tyr Glu Ala Asp Asp Val
65 70 75 80

Ile Leu His Thr Pro Gly Cys Val Pro Cys Val Gln Asp Gly Asn Thr
85 90 95

Ser Ala Cys Trp Thr Pro Val Thr Pro Thr Val Ala Val Arg Tyr Val
100 105 110

Gly Ala Thr Thr Ala Ser Ile Arg Arg His Val Asp Met Leu Val Gly
115 120 125

Ala Ala Thr Met Cys Ser Ala Leu Tyr Val Gly Asp Met Cys Gly Ala
130 135 140

Val Phe Leu Val Gly Gln Ala Phe Thr Phe Arg Pro Arg Arg His Gln
145 150 155 160

Thr Val Gln Thr Cys Asn Cys Ser Leu Tyr Pro Gly His Leu Ser Gly
165 170 175

His Arg Met Ala
180

<210> 15

<211> 541

<212> DNA

<213> hepatitis C virus

<400> 15

cgtcggcgct cctgtaggag gcgtcgcaag agcccttgcg catggcggtga gggcccttga 60
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 tgctctgttc tcttgcttaa tccatccagc agctagtcta gagtggcgga acacgtctgg 180
 cctctatgtc cttaccaacg actgttccaa tagcagtatt gtgtatgagg ccgatgacgt 240
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 gacccagtg acacctacag tggcagtcag gtacgtcgga gcaaccaccg cttcgatacg 360
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 tatgtgtggg gccgtcttcc tcgtgggaca agccttcacg ttcagacctc gtcgccatca 480
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<210> 16

<211> 180

<212> PRT

<213> hepatitis C virus

<400> 16

Val Gly Ala Pro Val Gly Gly Val Ala Arg Ala Leu Ala His Gly Val
 1 5 10 15

Arg Ala Leu Glu Asp Gly Ile Asn Phe Ala Thr Gly Asn Leu Pro Gly
 20 25 30

Cys Ser Phe Ser Ile Phe Leu Pro Ala Leu Phe Ser Cys Leu Ile His
 35 40 45

Pro Ala Ala Ser Leu Glu Trp Arg Asn Thr Ser Gly Leu Tyr Val Leu
 50 55 60

Thr Asn Asp Cys Ser Asn Ser Ser Ile Val Tyr Glu Ala Asp Asp Val
 65 70 75 80

Ile Leu His Thr Pro Gly Cys Val Pro Cys Val Gln Asp Gly Asn Thr
 85 90 95

Ser Ala Cys Trp Thr Pro Val Thr Pro Thr Val Ala Val Arg Tyr Val
100 105 110

Gly Ala Thr Thr Ala Ser Ile Arg Arg His Val Asp Ile Leu Val Gly
115 120 125

Ala Ala Thr Met Cys Ser Ala Leu Tyr Val Gly Asp Met Cys Gly Ala
130 135 140

Val Phe Leu Val Gly Gln Ala Phe Thr Phe Arg Pro Arg Arg His Gln
145 150 155 160

Thr Val Gln Thr Cys Asn Cys Ser Leu Tyr Pro Gly His Leu Ser Gly
165 170 175

His Arg Met Ala
180

<210> 17

<211> 541

<212> DNA

<213> hepatitis C virus

<400> 17
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tgctctgttc tcttgcttaa tccatccagc agctagtcta gagtggcgga acacgtctgg 180
cctctacgtc cttaccaacg actgttccaa tagcagtatt gtgtatgagg ccgatgacgt 240
tattctgcac acacccggct gtgtaccttg tggtcaggac ggtaatacat ctgcgtgctg 300
gaccccgatg acacctacag tggcagtcag gtacgtcgga gcaaccaccg cttcgatacg 360
caggcatgta gacatattgg tgggcgcggc cacgatgtgc tctgctctct acgtgggtga 420
tatgtgtggg gccgtcttcc tcgtgggaca agccttcacg ttcagacctc gtcgccatca 480
aacgggtccag acctgtaact gctcactgta cccaggccat ctttcaggac accgaatggc 540
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<210> 18

<211> 180

<212> PRT

<213> hepatitis C virus

<400> 18

Val Gly Ala Pro Val Gly Gly Val Ala Arg Ala Leu Ala His Gly Val
1 5 10 15

Arg Ala Leu Glu Asp Gly Ile Asn Phe Ala Thr Gly Asn Leu Pro Gly
20 25 30

Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu Phe Ser Cys Leu Ile His
35 40 45

Pro Ala Ala Ser Leu Glu Trp Arg Asn Thr Ser Gly Leu Tyr Val Leu
50 55 60

Thr Asn Asp Cys Ser Asn Ser Ser Ile Val Tyr Glu Ala Asp Asp Val
65 70 75 80

Ile Leu His Thr Pro Gly Cys Val Pro Cys Val Gln Asp Gly Asn Thr
85 90 95

Ser Ala Cys Trp Thr Pro Val Thr Pro Thr Val Ala Val Arg Tyr Val
100 105 110

Gly Ala Thr Thr Ala Ser Ile Arg Arg His Val Asp Ile Leu Val Gly
115 120 125

Ala Ala Thr Met Cys Ser Ala Leu Tyr Val Gly Asp Met Cys Gly Ala
130 135 140

Val Phe Leu Val Gly Gln Ala Phe Thr Phe Arg Pro Arg Arg His Gln
145 150 155 160

Thr Val Gln Thr Cys Asn Cys Ser Leu Tyr Pro Gly His Leu Ser Gly
165 170 175

His Arg Met Ala
180

<210> 19

<211> 541

<212> DNA

<213> hepatitis C virus

<400> 19

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tgctctgttc tcttgcttaa ttcattccagc agctagtcta gagtggcgga atacgtctgg      180
cctctatgtc cttaccaacg actgttccaa tagcagtatt gtgtacgagg ccgatgacgt      240
tattctgcac acacccggct gcataccttg tgtccaggac ggcaatacat ccacgtgctg      300
gacccagtg acacctacag tggcagtcaa gtacgtcgga gcaaccaccg cttcgatacg      360
cagtcatgtg gacctattag tgggcgcggc cacgatgtgc tcagcgctct acgtgggtga      420
tatgtgtggg gccgtcttcc ttgtgggaca agccttcacg ttcagacctc gtcgccatca      480
aacgggtccag acctgtaact gtcgctgta cccaggccat ctttcaggac atcgaatggc      540
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<210> 20

<211> 180

<212> PRT

<213> hepatitis C virus

<400> 20

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Val Gly Ala Pro Val Gly Gly Val Ala Arg Ala Leu Ala His Gly Val
1           5           10          15
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Arg Ala Leu Glu Asp Gly Ile Asn Phe Ala Thr Gly Asn Leu Pro Gly
20          25          30
```

```
Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu Phe Ser Cys Leu Ile His
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35

40

45

Pro Ala Ala Ser Leu Glu Trp Arg Asn Thr Ser Gly Leu Tyr Val Leu
50 55 60

Thr Asn Asp Cys Ser Asn Ser Ser Ile Val Tyr Glu Ala Asp Asp Val
65 70 75 80

Ile Leu His Thr Pro Gly Cys Ile Pro Cys Val Gln Asp Gly Asn Thr
85 90 95

Ser Thr Cys Trp Thr Pro Val Thr Pro Thr Val Ala Val Lys Tyr Val
100 105 110

Gly Ala Thr Thr Ala Ser Ile Arg Ser His Val Asp Leu Leu Val Gly
115 120 125

Ala Ala Thr Met Cys Ser Ala Leu Tyr Val Gly Asp Met Cys Gly Ala
130 135 140

Val Phe Leu Val Gly Gln Ala Phe Thr Phe Arg Pro Arg Arg His Gln
145 150 155 160

Thr Val Gln Thr Cys Asn Cys Ser Leu Tyr Pro Gly His Leu Ser Gly
165 170 175

His Arg Met Ala
180

<210> 21

<211> 541

<212> DNA

<213> hepatitis C virus

<400> 21

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agacgggata aatttcgcaa caggaattt gcccggttgc tccttttcta ttttcttct 120
tgctctgttc tcttgcttaa ttcattccagc agctagtcta gagtggcgga atacgtctgg 180
cctctatgtc cttaccaacg actgttccaa tagcagtatt gtgtacgagg ccgatgacgt 240

tattctgcac acacccggct gcataccttg tgtccaggac ggcaatacat ccacgtgctg	300
gaccccgagt acacctacag tggcagtc aa gtacgtcgga gcaaccaccg cttcgatacg	360
cagtcagtgtg gacctattag tgggcgcggc cacgatgtgc tctgcgctct acgtgggtga	420
catgtgtggg gctgtcttcc tcgtgggaca agccttcacg ttcagacctc gtcgccatca	480
aacggtccag acctgtaact gctcgctgta cccaggccat ctttcaggac atcgaatggc	540
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<210> 22

<211> 180

<212> PRT

<213> hepatitis C virus

<400> 22

Val Gly Ala Pro Val Gly Gly Val Ala Arg Ala Leu Ala His Gly Val	
1 5 10 15	
Arg Ala Leu Glu Asp Gly Ile Asn Phe Ala Thr Gly Asn Leu Pro Gly	
20 25 30	
Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu Phe Ser Cys Leu Ile His	
35 40 45	
Pro Ala Ala Ser Leu Glu Trp Arg Asn Thr Ser Gly Leu Tyr Val Leu	
50 55 60	
Thr Asn Asp Cys Ser Asn Ser Ser Ile Val Tyr Glu Ala Asp Asp Val	
65 70 75 80	
Ile Leu His Thr Pro Gly Cys Ile Pro Cys Val Gln Asp Gly Asn Thr	
85 90 95	
Ser Thr Cys Trp Thr Pro Val Thr Pro Thr Val Ala Val Lys Tyr Val	
100 105 110	
Gly Ala Thr Thr Ala Ser Ile Arg Ser His Val Asp Leu Leu Val Gly	
115 120 125	

Ala Ala Thr Met Cys Ser Ala Leu Tyr Val Gly Asp Met Cys Gly Ala
 130 135 140

Val Phe Leu Val Gly Gln Ala Phe Thr Phe Arg Pro Arg Arg His Gln
 145 150 155 160

Thr Val Gln Thr Cys Asn Cys Ser Leu Tyr Pro Gly His Leu Ser Gly
 165 170 175

His Arg Met Ala
 180

<210> 23

<211> 541

<212> DNA

<213> hepatitis C virus

<400> 23
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 cagtcatgtg gacctgttag taggcgcggc cacgatgtgc tctgcgcttt acgtgggtga 420
 tatgtgtggg gccgtcttcc tcgtgggaca agccttcacg ttcagacccc gccgccatca 480
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<210> 24

<211> 180

<212> PRT

<213> hepatitis C virus

<400> 24

Val Gly Ala Pro Val Gly Gly Val Ala Arg Ala Leu Ala His Gly Val
1 5 10 15

Arg Ala Leu Glu Asp Gly Ile Asn Phe Ala Thr Gly Asn Leu Pro Gly
20 25 30

Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu Phe Ser Cys Leu Ile His
35 40 45

Pro Ala Ala Gly Leu Glu Trp Arg Asn Thr Ser Gly Leu Tyr Val Leu
50 55 60

Thr Asn Asp Cys Ser Asn Ser Ser Ile Val Tyr Glu Ala Asp Asp Val
65 70 75 80

Ile Leu His Ala Pro Gly Cys Val Pro Cys Val Gln Asp Gly Asn Thr
85 90 95

Ser Thr Cys Trp Thr Pro Val Thr Pro Thr Val Ala Val Arg Tyr Val
100 105 110

Gly Ala Thr Thr Ala Ser Ile Arg Ser His Val Asp Leu Leu Val Gly
115 120 125

Ala Ala Thr Met Cys Ser Ala Leu Tyr Val Gly Asp Met Cys Gly Ala
130 135 140

Val Phe Leu Val Gly Gln Ala Phe Thr Phe Arg Pro Arg Arg His Gln
145 150 155 160

Thr Val Gln Thr Cys Asn Cys Ser Leu Tyr Pro Gly His Leu Ser Gly
165 170 175

His Arg Met Ala
180

<210> 25

<211> 541

<212> DNA

<213> hepatitis C virus

<400> 25

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tgctctgttc tcttgcttaa tccatccagc agctggtcta gagtggcgga atacgtctgg      180
cctctatgtc cttaccaacg actgttccaa tagtagtatt gtgtatgagg ccgatgacgt      240
tattctgcac gcgcccggct gtgtaccttg tgtccaggac ggcaatacgt ctacatgctg      300
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cagtcatgtg gacctgttag taggcgcggc cacgatgtgc tctgcgcttt acgtgggtga      420
tatgtgtggg gccgtcttcc tcgtgggaca agccttcacg ttcagacccc gccgccatca      480
aacggtccag acctgtaact gctcgctgta cccaggccat ctttcaggac atcgaatggc      540
t                                                                                   541
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<210> 26

<211> 180

<212> PRT

<213> hepatitis C virus

<400> 26

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Val Gly Ala Pro Val Gly Gly Val Ala Arg Ala Leu Ala His Gly Val
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Arg Ala Leu Glu Asp Gly Ile Asn Phe Ala Thr Gly Asn Leu Pro Gly
20          25          30
Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu Phe Ser Cys Leu Ile His
35          40          45
Pro Ala Ala Gly Leu Glu Trp Arg Asn Thr Ser Gly Leu Tyr Val Leu
50          55          60
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Thr Asn Asp Cys Ser Asn Ser Ser Ile Val Tyr Glu Ala Asp Asp Val
65 70 75 80

Ile Leu His Ala Pro Gly Cys Val Pro Cys Val Gln Asp Gly Asn Thr
85 90 95

Ser Thr Cys Trp Thr Pro Val Thr Pro Thr Val Ala Val Arg Tyr Val
100 105 110

Gly Ala Thr Thr Ala Ser Ile Arg Ser His Val Asp Leu Leu Val Gly
115 120 125

Ala Ala Thr Met Cys Ser Ala Leu Tyr Val Gly Asp Met Cys Gly Ala
130 135 140

Val Phe Leu Val Gly Gln Ala Phe Thr Phe Arg Pro Arg Arg His Gln
145 150 155 160

Thr Val Gln Thr Cys Asn Cys Ser Leu Tyr Pro Gly His Leu Ser Gly
165 170 175

His Arg Met Ala
180

<210> 27

<211> 541

<212> DNA

<213> hepatitis C virus

<400> 27
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tgctctgttc tcttgcttaa tccatccagc agctgggtcta gagtggcgga atacgtctgg 180
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gacccagta acacctacag tggcagtcag gtacgtcggg gcaaccaccg cttcgatacg 360
cagtcatgtg gacctgttag taggcgcggc cacgatgtgc tctgcgcttt acgtgggtga 420

tatgtgtggg gccgtcttcc tcgtgggaca agccttcacg ttcagacccc gccgccatca	480
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<210> 28

<211> 180

<212> PRT

<213> hepatitis C virus

<400> 28

Val Gly Ala Pro Val Gly Gly Val Ala Arg Ala Leu Ala His Gly Val	
1 5 10 15	

Arg Ala Leu Glu Asp Gly Ile Asn Phe Ala Thr Gly Asn Leu Pro Gly	
20 25 30	

Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu Phe Ser Cys Leu Ile His	
35 40 45	

Pro Ala Ala Gly Leu Glu Trp Arg Asn Thr Ser Gly Leu Tyr Val Leu	
50 55 60	

Thr Asn Asp Cys Ser Asn Ser Ser Ile Val Tyr Glu Ala Asp Asp Val	
65 70 75 80	

Ile Leu His Ala Pro Gly Cys Val Pro Cys Val Gln Asp Gly Asn Thr	
85 90 95	

Ser Thr Cys Trp Thr Pro Val Thr Pro Thr Val Ala Val Arg Tyr Val	
100 105 110	

Gly Ala Thr Thr Ala Ser Ile Arg Ser His Val Asp Leu Leu Val Gly	
115 120 125	

Ala Ala Thr Met Cys Ser Ala Leu Tyr Val Gly Asp Met Cys Gly Ala	
130 135 140	

Val Phe Leu Val Gly Gln Ala Phe Thr Phe Arg Pro Arg Arg His Gln	
145 150 155 160	

Thr Val Gln Thr Cys Asn Cys Ser Leu Tyr Pro Gly His Leu Ser Gly
165 170 175

His Arg Met Ala
180

<210> 29

<211> 287

<212> DNA

<213> hepatitis C virus

<400> 29
tagacttttg ggagagcgtc ttcactggac taactcacat agatgccac tttctgtcac 60
agactaagca gcagggactc aacttctcgt tcctgactgc ctaccaagcc actgtgtgcg 120
ctcgcgcgca ggctcctccc ccaagttggg acgagatgtg gaagtgtctc gtacggctta 180
agccaacact acatggacct acgcctcttc tatatcggtt ggggcctgtc caaatgaaa 240
tctgcttgac acaccccatc acaaaatata tcatggcatg catgtca 287

<210> 30

<211> 95

<212> PRT

<213> hepatitis C virus

<400> 30

Asp Phe Trp Glu Ser Val Phe Thr Gly Leu Thr His Ile Asp Ala His
1 5 10 15

Phe Leu Ser Gln Thr Lys Gln Gln Gly Leu Asn Phe Ser Phe Leu Thr
20 25 30

Ala Tyr Gln Ala Thr Val Cys Ala Arg Ala Gln Ala Pro Pro Pro Ser
35 40 45

Trp Asp Glu Met Trp Lys Cys Leu Val Arg Leu Lys Pro Thr Leu His
50 55 60

Gly Pro Thr Pro Leu Leu Tyr Arg Leu Gly Pro Val Gln Asn Glu Ile
65 70 75 80

Cys Leu Thr His Pro Ile Thr Lys Tyr Ile Met Ala Cys Met Ser
85 90 95

<210> 31

<211> 401

<212> DNA

<213> hepatitis C virus

<400> 31
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cggcctactg cttgtcagtc ggctgcgttg taatcgtggg tcatatcgag ctggggggca 180
agccggcact cggtccagac aaggagggtgt tgtatcaaca gtacgatgag atggaggagt 240
gctcgcaagc cgccccatac atcgaacaag ctcaggtaat agcccaccag ttcaaggaga 300
aatcccttgg actgctgcag cgagccaccc aacaacaagc tgtcattgag cccgtaatag 360
cttccaactg gcaaaagctt gaaaccttct ggcacaagca t 401

<210> 32

<211> 133

<212> PRT

<213> hepatitis C virus

<400> 32

Gln Asn Glu Ile Cys Leu Thr His Pro Val Thr Lys Tyr Ile Met Ala
1 5 10 15

Cys Met Ser Ala Asp Leu Glu Val Thr Thr Ser Thr Trp Val Leu Leu
20 25 30

Gly Gly Val Leu Ala Ala Leu Ala Ala Tyr Cys Leu Ser Val Gly Cys
 35 40 45

Val Val Ile Val Gly His Ile Glu Leu Gly Gly Lys Pro Ala Leu Val
 50 55 60

Pro Asp Lys Glu Val Leu Tyr Gln Gln Tyr Asp Glu Met Glu Glu Cys
 65 70 75 80

Ser Gln Ala Ala Pro Tyr Ile Glu Gln Ala Gln Val Ile Ala His Gln
 85 90 95

Phe Lys Glu Lys Ile Leu Gly Leu Leu Gln Arg Ala Thr Gln Gln Gln
 100 105 110

Ala Val Ile Glu Pro Val Ile Ala Ser Asn Trp Gln Lys Leu Glu Thr
 115 120 125

Phe Trp His Lys His
 130

<210> 33

<211> 401

<212> DNA

<213> hepatitis C virus

<400> 33
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 cggcctactg cttgtcagtc ggctgcgttg taatcgtggg tcatatcgag ctggggggca 180
 agccggcact cgttcagac aaggaggtgt tgtatcaaca gtacgatgag atggaggagt 240
 gctcgcaagc cgccccatac atcgaacaag ctcaggtaat agcccaccag ttcaaggaga 300
 aaatccttgg actgctgcag cgagccaccc aacaacaagc tgtcattgag cccgtaatat 360
 cttccaactg gcaaaagctt gaaaccttct ggcacaagca t 401

<210> 34

<211> 133

<212> PRT

<213> hepatitis C virus

<400> 34

Gln Asn Glu Ile Cys Leu Thr His Pro Val Thr Lys Tyr Ile Met Ala
1 5 10 15

Cys Met Ser Ala Asp Leu Glu Val Thr Thr Ser Thr Trp Val Leu Leu
20 25 30

Gly Gly Val Leu Ala Ala Leu Ala Ala Tyr Cys Leu Ser Val Gly Cys
35 40 45

Val Val Ile Val Gly His Ile Glu Leu Gly Gly Lys Pro Ala Leu Val
50 55 60

Pro Asp Lys Glu Val Leu Tyr Gln Gln Tyr Asp Glu Met Glu Glu Cys
65 70 75 80

Ser Gln Ala Ala Pro Tyr Ile Glu Gln Ala Gln Val Ile Ala His Gln
85 90 95

Phe Lys Glu Lys Ile Leu Gly Leu Leu Gln Arg Ala Thr Gln Gln Gln
100 105 110

Ala Val Ile Glu Pro Val Ile Ala Ser Asn Trp Gln Lys Leu Glu Thr
115 120 125

Phe Trp His Lys His
130

<210> 35

<211> 401

<212> DNA

<213> hepatitis C virus

<400> 35
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 ctgatctgga agtaaccacc agcacctggg ttttgcttgg aggggtcctc gcggccctag 120
 cggcctactg cttgtcagtc ggttgtgttg tgattgtggg tcatatcgag ctgggggggca 180
 agccggcaat cgttccagac aaagaggtgt tgtatcaaca atacgatgag atggaagagt 240
 gctcacaagc tgccccatat atcgaacaag ctcaggtaat agtcaccag ttcaagggaa 300
 aagtccttgg attgctgcag cgagccaccc aacaacaagc tgtcattgag cccatagtaa 360
 ctaccaactg gcaaaagctt gaggcctttt ggcacaagca t 401

<210> 36

<211> 133

<212> PRT

<213> hepatitis C virus

<400> 36

Gln Asn Glu Ile Cys Leu Thr His Pro Ile Thr Lys Tyr Ile Met Ala
 1 5 10 15

Cys Met Ser Ala Asp Leu Glu Val Thr Thr Ser Thr Trp Val Leu Leu
 20 25 30

Gly Gly Val Leu Ala Ala Leu Ala Ala Tyr Cys Leu Ser Val Gly Cys
 35 40 45

Val Val Ile Val Gly His Ile Glu Leu Gly Gly Lys Pro Ala Ile Val
 50 55 60

Pro Asp Lys Glu Val Leu Tyr Gln Gln Tyr Asp Glu Met Glu Glu Cys
 65 70 75 80

Ser Gln Ala Ala Pro Tyr Ile Glu Gln Ala Gln Val Ile Ala His Gln
 85 90 95

Phe Lys Gly Lys Val Leu Gly Leu Leu Gln Arg Ala Thr Gln Gln Gln
 100 105 110

Ala Val Ile Glu Pro Ile Val Thr Thr Asn Trp Gln Lys Leu Glu Ala

115

120

125

Phe Trp His Lys His
130

<210> 37

<211> 401

<212> DNA

<213> hepatitis C virus

<400> 37

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tccaaaatga aatctgcttg acacacccca tcacaaaata catcatggca tgcattgtcag      60
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cggcctactg cttgtcagtc ggttgtgttg tgattgtggg tcatatcgag ctgggggggca      180
agccggcaat cgttccagac aaagaggtgt tgtatcaaca atacgatgag atggaagagt      240
gctcacaagc tgccccatat atcgaacaag ctcaggtgat agctcaccag ttcaaggaaa      300
aagtccttgg attgctgcag cgagccaccc aacaacaagc tgtcattgag cccatagtaa      360
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<210> 38

<211> 133

<212> PRT

<213> hepatitis C virus

<400> 38

Gln Asn Glu Ile Cys Leu Thr His Pro Ile Thr Lys Tyr Ile Met Ala
1 5 10 15

Cys Met Ser Ala Asp Leu Glu Val Thr Thr Ser Thr Trp Val Leu Leu
20 25 30

Gly Gly Val Leu Ala Ala Leu Ala Ala Tyr Cys Leu Ser Val Gly Cys
35 40 45

Val Val Ile Val Gly His Ile Glu Leu Gly Gly Lys Pro Ala Ile Val
 50 55 60

Pro Asp Lys Glu Val Leu Tyr Gln Gln Tyr Asp Glu Met Glu Glu Cys
 65 70 75 80

Ser Gln Ala Ala Pro Tyr Ile Glu Gln Ala Gln Val Ile Ala His Gln
 85 90 95

Phe Lys Glu Lys Val Leu Gly Leu Leu Gln Arg Ala Thr Gln Gln Gln
 100 105 110

Ala Val Ile Glu Pro Ile Val Thr Thr Asn Trp Gln Lys Leu Glu Ala
 115 120 125

Phe Trp His Lys His
 130

<210> 39

<211> 401

<212> DNA

<213> hepatitis C virus

<400> 39
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 ctgatctgga agtaaccacc agcacctggg ttttgcttgg aggggtcctc gcggccctag 120
 cggcctactg cttgtcagtc ggttggtgtg tgattgtggg tcatatcgag ctgggggggca 180
 agccggcaat cgttccagac aaagaggtgt tgtatcaaca atacgatgag atggaagagt 240
 gctcacaagc tgccccatat atcgaacaag ctcaggtaat agctcaccag ttcaaggaaa 300
 aagtccttgg attgctgcag cgagccaccc aacaacaagc tgtcattgag cccatagtaa 360
 ctaccaactg gcaaaagctt gaggcctttt ggcaacaagca t 401

<210> 40

<211> 133

<212> PRT

<213> hepatitis C virus

<400> 40

Gln Asn Glu Ile Cys Leu Thr His Pro Ile Thr Lys Tyr Ile Met Ala
1 5 10 15

Cys Met Ser Ala Asp Leu Glu Val Thr Thr Ser Thr Trp Val Leu Leu
20 25 30

Gly Gly Val Leu Ala Ala Leu Ala Ala Tyr Cys Leu Ser Val Gly Cys
35 40 45

Val Val Ile Val Gly His Ile Glu Leu Gly Gly Lys Pro Ala Ile Val
50 55 60

Pro Asp Lys Glu Val Leu Tyr Gln Gln Tyr Asp Glu Met Glu Glu Cys
65 70 75 80

Ser Gln Ala Ala Pro Tyr Ile Glu Gln Ala Gln Val Ile Ala His Gln
85 90 95

Phe Lys Glu Lys Val Leu Gly Leu Leu Gln Arg Ala Thr Gln Gln Gln
100 105 110

Ala Val Ile Glu Pro Ile Val Thr Thr Asn Trp Gln Lys Leu Glu Ala
115 120 125

Phe Trp His Lys His
130

<210> 41

<211> 509

<212> DNA

<213> hepatitis C virus

<400> 41

ccatgagcac gaatcctaaa cctcaaagaa aaaccaaag aaacaccaac cgtcgcccac 60

aggacgtcaa gttcccgggc ggtggtcaga tcgttggcgg agtttacttg ttgccgcgca 120

ggggccctag gatgggtgtg cgcgcgactc ggaagacttc ggaacggtcg caaccccgctg 180

gacggcggtca gcctattccc aaggcgcgcc agcccacggg ccggtcctgg ggtcaacccg	240
ggtacccttg gcccctttac gccaatgagg gcctcgggtg ggcaggggtg ctgctctccc	300
ctcgaggctc tcggcctaata tggggcccca atgacccccg gcgaaaatcg cgtaatttgg	360
gtaaggtcat cgatacccta acgtgcggat tcgccgatct catgggggtat atcccgtcgc	420
taggcggccc cattgggggc gtcgcaaggg ctctcgacac cggtgtgagg gtccttgagg	480
acgggggtaaa ctatgcaaca gggaatttta	509

<210> 42

<211> 169

<212> PRT

<213> hepatitis C virus

<400> 42

Met	Ser	Thr	Asn	Pro	Lys	Pro	Gln	Arg	Lys	Thr	Lys	Arg	Asn	Thr	Asn
1				5					10					15	

Arg	Arg	Pro	Gln	Asp	Val	Lys	Phe	Pro	Gly	Gly	Gly	Gln	Ile	Val	Gly
			20					25					30		

Gly	Val	Tyr	Leu	Leu	Pro	Arg	Arg	Gly	Pro	Arg	Met	Gly	Val	Arg	Ala
		35					40					45			

Thr	Arg	Lys	Thr	Ser	Glu	Arg	Ser	Gln	Pro	Arg	Gly	Arg	Arg	Gln	Pro
	50					55					60				

Ile	Pro	Lys	Ala	Arg	Gln	Pro	Thr	Gly	Arg	Ser	Trp	Gly	Gln	Pro	Gly
65					70					75				80	

Tyr	Pro	Trp	Pro	Leu	Tyr	Ala	Asn	Glu	Gly	Leu	Gly	Trp	Ala	Gly	Trp
				85					90					95	

Leu	Leu	Ser	Pro	Arg	Gly	Ser	Arg	Pro	Asn	Trp	Gly	Pro	Asn	Asp	Pro
			100					105					110		

Arg	Arg	Lys	Ser	Arg	Asn	Leu	Gly	Lys	Val	Ile	Asp	Thr	Leu	Thr	Cys
		115					120					125			

Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Gly Pro Ile
130 135 140

Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Val Leu Glu Asp
145 150 155 160

Gly Val Asn Tyr Ala Thr Gly Asn Leu
165

<210> 43

<211> 509

<212> DNA

<213> hepatitis C virus

<400> 43
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ggggccctag gatgggtgtg cgcgcgactc ggaagacttc ggaacggtcg caaccccggtg 180
gacggcgtca gcctattccc aaggcgcgcc agcccacggg ccggtcctgg ggtcaaccgg 240
ggtacccttg gcccctttac gccaatgagg gcctcgggtg ggcaggggtg ctgctctccc 300
ctcgaggctc tcggcctaata tggggcccca atgacccccg gcgaaaatcg cgtaatttgg 360
gtaaggtcat cgatacccta acgtgcggat tcgccgatct catgggggtat atcccgctcg 420
taggcggccc cattgggggc gtcgcaaggg ctctcgaca cggtgtgagg gtccttgagg 480
acggggtaaa ctatgcaaca gggaattta 509

<210> 44

<211> 169

<212> PRT

<213> hepatitis C virus

<400> 44

Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn
1 5 10 15

Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly
 20 25 30

Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Met Gly Val Arg Ala
 35 40 45

Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro
 50 55 60

Ile Pro Lys Ala Arg Gln Pro Thr Gly Arg Ser Trp Gly Gln Pro Gly
 65 70 75 80

Tyr Pro Trp Pro Leu Tyr Ala Asn Glu Gly Leu Gly Trp Ala Gly Trp
 85 90 95

Leu Leu Ser Pro Arg Gly Ser Arg Pro Asn Trp Gly Pro Asn Asp Pro
 100 105 110

Arg Arg Lys Ser Arg Asn Leu Gly Lys Val Ile Asp Thr Leu Thr Cys
 115 120 125

Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Gly Pro Ile
 130 135 140

Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Val Leu Glu Asp
 145 150 155 160

Gly Val Asn Tyr Ala Thr Gly Asn Leu
 165

<210> 45

<211> 580

<212> DNA

<213> hepatitis C virus

<400> 45
 aacgtgcgga ttcgccgatc tcatggggta tatcccgctc gtaggcggcc ccattggggg 60

cgtcgcaagg gctctcgcac acggtgtgag ggtccttgag gacggggtaa actatgcaac 120

aggggaattta cccggttgct ctttctctat ctttattctt gctcttctct cgtgtctgac 180
 cgttccggcc tctgcagttc cctaccgaaa tgcctctggg atttatcatg ttaccaatga 240
 ttgccc aaac tcttccatag tctatgaggc agataacctg atcctacacg cacctgggtg 300
 cgtgccttgt gtcatgacag gtaatgtgag tagatgctgg gtccaaatta cccctacact 360
 gtcagccccg agcctcggag cagtcacggc tcctcttcgg agagccgttg actacctagc 420
 gggaggggct gccctctgct ccgcgttata cgtaggagac gcgtgtgggg cactattctt 480
 ggtaggccaa atgttcacct ataggcctcg ccagcacgct acggtgcaga actgcaactg 540
 ttccatttac agtggccatg ttaccggcca ccggatggca 580

<210> 46

<211> 193

<212> PRT

<213> hepatitis C virus

<400> 46

Thr Cys Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Gly
 1 5 10 15

Pro Ile Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Val Leu
 20 25 30

Glu Asp Gly Val Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe
 35 40 45

Ser Ile Phe Ile Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Ala Ser
 50 55 60

Ala Val Pro Tyr Arg Asn Ala Ser Gly Ile Tyr His Val Thr Asn Asp
 65 70 75 80

Cys Pro Asn Ser Ser Ile Val Tyr Glu Ala Asp Asn Leu Ile Leu His
 85 90 95

Ala Pro Gly Cys Val Pro Cys Val Met Thr Gly Asn Val Ser Arg Cys
 100 105 110

Trp Val Gln Ile Thr Pro Thr Leu Ser Ala Pro Ser Leu Gly Ala Val
115 120 125

Thr Ala Pro Leu Arg Arg Ala Val Asp Tyr Leu Ala Gly Gly Ala Ala
130 135 140

Leu Cys Ser Ala Leu Tyr Val Gly Asp Ala Cys Gly Ala Leu Phe Leu
145 150 155 160

Val Gly Gln Met Phe Thr Tyr Arg Pro Arg Gln His Ala Thr Val Gln
165 170 175

Asn Cys Asn Cys Ser Ile Tyr Ser Gly His Val Thr Gly His Arg Met
180 185 190

Ala

<210> 47

<211> 580

<212> DNA

<213> hepatitis C virus

<400> 47

aacgtgcgga ttcgccgatc tcatggggta tatcccgtc gtaggcggcc ccattggggg	60
cgtcgcaagg gctctcgac acggtgtgag ggtccttgag gacggggtaa actatgcaac	120
agggaattta cccggttgct ctttctctat ctttattctt gctcttctct cgtgtctgac	180
cgttccggcc tctgcagttc cctaccgaaa tgcctctggg atttatcatg ttaccaatga	240
ttgccccaaac tcttccatag tctatgaggc agataacctg atcctacacg cacctgggtg	300
cgtgccttgt gtcacgacag gtaatgtgag tagatgctgg gtccaaatta cccctacact	360
gtcagccccg agcctcggag cagtcacggc tcctcttcgg agagccgttg actacctagc	420
gggagggggt gccctctgct ccgcgttata cgtaggagac gcgtgtgggg cactattctt	480
ggtaggccaa atgttcacct ataggcctcg ccagcacgct acggtgcaga actgcaactg	540
ttccatttac agtggccatg ttaccggcca ccgatggca	580

<210> 48

<211> 193

<212> PRT

<213> hepatitis C virus

<400> 48

Thr Cys Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Gly
1 5 10 15

Pro Ile Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Val Leu
20 25 30

Glu Asp Gly Val Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe
35 40 45

Ser Ile Phe Ile Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Ala Ser
50 55 60

Ala Val Pro Tyr Arg Asn Ala Ser Gly Ile Tyr His Val Thr Asn Asp
65 70 75 80

Cys Pro Asn Ser Ser Ile Val Tyr Glu Ala Asp Asn Leu Ile Leu His
85 90 95

Ala Pro Gly Cys Val Pro Cys Val Met Thr Gly Asn Val Ser Arg Cys
100 105 110

Trp Val Gln Ile Thr Pro Thr Leu Ser Ala Pro Ser Leu Gly Ala Val
115 120 125

Thr Ala Pro Leu Arg Arg Ala Val Asp Tyr Leu Ala Gly Gly Ala Ala
130 135 140

Leu Cys Ser Ala Leu Tyr Val Gly Asp Ala Cys Gly Ala Leu Phe Leu
145 150 155 160

Val Gly Gln Met Phe Thr Tyr Arg Pro Arg Gln His Ala Thr Val Gln
165 170 175

Asn Cys Asn Cys Ser Ile Tyr Ser Gly His Val Thr Gly His Arg Met
180 185 190

Ala

<210> 49

<211> 959

<212> DNA

<213> hepatitis C virus

<400>	49						
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aggacgtcaa	gttcccgggc	ggtggtcaga	tcgttggcgg	agtttacttg	ttgccgcgca		120
ggggccctag	gatgggtgtg	cgcgcgactc	ggaagacttc	ggaacggctg	caaccccgtg		180
gacggcgctca	gcctattccc	aaggcgcgcc	agcccacggg	ccggtcctgg	ggtcaacccg		240
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gtaaggatcat	cgatacccta	acgtgcggat	tcgcgatct	catgggggat	atcccgcctg		420
taggcggccc	cattgggggc	gtcgcaaggg	ctctcgca	cgggtgtgagg	gtccttgagg		480
acggggtaaa	ctatgcaaca	gggaatttac	ccggttgctc	tttctctatc	tttattcttg		540
ctcttctctc	gtgtctgacc	gttcgggcct	ctgcagttcc	ctaccgaaat	gcctctggga		600
tttatcatgt	taccaatgat	tgcccaaact	cttccatagt	ctatgaggca	gataacctga		660
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tccaaattac	ccctacactg	tcagccccga	gcctcggagc	agtcacggct	cctcttcgga		780
gagccgttga	ctacctagcg	ggaggggctg	ccctctgctc	cgcgttatac	gtaggagacg		840
cgtgtggggc	actattcttg	gtaggccaaa	tgttcaccta	taggcctcgc	cagcacgcta		900
cgggtgcagaa	ctgcaactgt	tccatttaca	gtggccatgt	taccggccac	cggatggca		959

<210> 50

<211> 319

<212> PRT

<213> hepatitis C virus

<400> 50

Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn
1 5 10 15

Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly
20 25 30

Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Met Gly Val Arg Ala
35 40 45

Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro
50 55 60

Ile Pro Lys Ala Arg Gln Pro Thr Gly Arg Ser Trp Gly Gln Pro Gly
65 70 75 80

Tyr Pro Trp Pro Leu Tyr Ala Asn Glu Gly Leu Gly Trp Ala Gly Trp
85 90 95

Leu Leu Ser Pro Arg Gly Ser Arg Pro Asn Trp Gly Pro Asn Asp Pro
100 105 110

Arg Arg Lys Ser Arg Asn Leu Gly Lys Val Ile Asp Thr Leu Thr Cys
115 120 125

Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Gly Pro Val
130 135 140

Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Val Leu Glu Asp
145 150 155 160

Gly Val Asn Tyr Pro Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile
165 170 175

Phe Ile Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Ala Ser Ala Val
180 185 190

Pro Tyr Arg Asn Ala Ser Gly Ile Tyr His Val Thr Asn Asp Cys Pro

195	200	205
Asn Ser Ser Ile Val Tyr Glu Ala Asp Asn Leu Ile Leu His Ala Pro		
210	215	220
Gly Cys Val Pro Cys Val Met Thr Gly Asn Val Ser Arg Cys Trp Val		
225	230	235
Gln Ile Thr Pro Thr Leu Ser Ala Pro Ser Leu Gly Ala Val Thr Ala		
	245	250
Pro Leu Arg Arg Ala Val Asp Tyr Leu Ala Gly Gly Ala Ala Leu Cys		
	260	265
Ser Ala Leu Tyr Val Gly Asp Ala Cys Gly Ala Leu Phe Leu Val Gly		
	275	280
Gln Met Phe Thr Tyr Arg Pro Arg Gln His Ala Thr Val Gln Asn Cys		
	290	295
Asn Cys Ser Ile Tyr Ser Gly His Val Thr Gly His Arg Met Ala		
305	310	315

<210> 51

<211> 959

<212> DNA

<213> hepatitis C virus

<400> 51

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ggggccctag gatgggtgtg cgcgcgactc ggaagacttc ggaacggtcg caaccccg	180
gacggcgtca gcctattccc aaggcgcgcc agcccacggg ccggtcctgg ggtcaacccg	240
ggtacccttg gcccctttac gccaatgagg gcctcgggtg ggcagggtgg ctgctctccc	300
ctcgaggctc tcggcctaatt tggggcccca atgacccccg gcgaaaatcg cgtaatttgg	360
gtaaggtcat cgatacccta acgtgcggat tcgccgatct catgggggtac atcccgctcg	420
taggcggccc cgttgggggc gtcgcaaggg ctctcgaca cggtgtgagg gtccttgagg	480

acggggtaaa ctatccaaca gggaatttac ccggttgctc tttctctatc tttattcttg 540
ctcttctctc gtgtctgacc gttccggcct ctgcagttcc ctaccgaaat gcctctggga 600
tttatcatgt taccaatgat tgcccaaact cttccatagt ctatgaggca gataacctga 660
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tccaaattac ccctacactg tcagccccga gcctcggagc agtcacggct cctcttcgga 780
gagccgttga ctacctagcg ggaggggctg ccctctgctc cgcgttatac gtaggagacg 840
cgtgtggggc actattcttg gtaggccaaa tgttcaccta taggcctcgc cagcacgcta 900
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<210> 52

<211> 319

<212> PRT

<213> hepatitis C virus

<400> 52

Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn
1 5 10 15

Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly
20 25 30

Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Met Gly Val Arg Ala
35 40 45

Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro
50 55 60

Ile Pro Lys Ala Arg Gln Pro Thr Gly Arg Ser Trp Gly Gln Pro Gly
65 70 75 80

Tyr Pro Trp Pro Leu Tyr Ala Asn Glu Gly Leu Gly Trp Ala Gly Trp
85 90 95

Leu Leu Ser Pro Arg Gly Ser Arg Pro Asn Trp Gly Pro Asn Asp Pro
100 105 110

Arg Arg Lys Ser Arg Asn Leu Gly Lys Val Ile Asp Thr Leu Thr Cys
115 120 125

Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Gly Pro Val
130 135 140

Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Val Leu Glu Asp
145 150 155 160

Gly Val Asn Tyr Pro Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile
165 170 175

Phe Ile Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Ala Ser Ala Val
180 185 190

Pro Tyr Arg Asn Ala Ser Gly Ile Tyr His Val Thr Asn Asp Cys Pro
195 200 205

Asn Ser Ser Ile Val Tyr Glu Ala Asp Asn Leu Ile Leu His Ala Pro
210 215 220

Gly Cys Val Pro Cys Val Met Thr Gly Asn Val Ser Arg Cys Trp Val
225 230 235 240

Gln Ile Thr Pro Thr Leu Ser Ala Pro Ser Leu Gly Ala Val Thr Ala
245 250 255

Pro Leu Arg Arg Ala Val Asp Tyr Leu Ala Gly Gly Ala Ala Leu Cys
260 265 270

Ser Ala Leu Tyr Val Gly Asp Ala Cys Gly Ala Leu Phe Leu Val Gly
275 280 285

Gln Met Phe Thr Tyr Arg Pro Arg Gln His Ala Thr Val Gln Asn Cys
290 295 300

Asn Cys Ser Ile Tyr Ser Gly His Val Thr Gly His Arg Met Ala
305 310 315

<210> 53

<211> 959

<212> DNA

<213> hepatitis C virus

<400> 53

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ccatgagcac gaatcctaaa cctcaaagaa aaacaaaaag aaacaccaac cgtcgcccac    60
aggacgtcaa gttcccgggc ggtggtcaga tcgttggcgg agtttacttg ttgccgcgca    120
ggggccctag gatgggtgtg cgcgcgactc ggaagacttc ggaacggtcg caaccccgctg    180
gacggcgtca gcctattccc aaggcgcgcc agccacggg ccggtcctgg ggtcaaccgc    240
ggtacccttg gcccctttac gccaatgagg gcctcgggtg ggcaggggtg ctgctctccc    300
ctcgaggctc tcggcctaata tggggcccca atgacccccg gcgaaaatcg cgtaatttgg    360
gtaagggtcat cgatacccta acgtgcggat tcgccgatct catgggggtay atcccgctcg    420
taggcggccc crtggggggc gtcgcaaggc ctctcgaca cgggtgtgagg gtccttgagg    480
acggggtaaa ctatscaaca gggaatttac ccggttgctc tttctctatc tttattcttg    540
ctcttctctc gtgtctgacc gttccggcct ctgcagttcc ctaccgaaat gcctctggga    600
tttatcatgt taccaatgat tgcccaaact cttccatagt ctatgaggca gataacctga    660
tcctacacgc acctgggtgc gtgccttggtg tcatgacagg taatgtgagt agatgctggg    720
tccaaattac ccctacactg tcagccccga gcctcggagc agtcacggct cctcttcgga    780
gagccgttga ctacctagcg ggaggggctg ccctctgctc cgcgttatac gtaggagacg    840
cgtgtggggc actattcttg gtaggccaaa tggtcaccta taggcctcgc cagcacgcta    900
cgggtgcagaa ctgcaactgt tccatttaca gtggccatgt taccggccac cggatggca    959
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<210> 54

<211> 319

<212> PRT

<213> hepatitis C virus

<400> 54

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1           5           10          15
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Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly
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20

25

30

Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Met Gly Val Arg Ala
 35 40 45

Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro
 50 55 60

Ile Pro Lys Ala Arg Gln Pro Thr Gly Arg Ser Trp Gly Gln Pro Gly
 65 70 75 80

Tyr Pro Trp Pro Leu Tyr Ala Asn Glu Gly Leu Gly Trp Ala Gly Trp
 85 90 95

Leu Leu Ser Pro Arg Gly Ser Arg Pro Asn Trp Gly Pro Asn Asp Pro
 100 105 110

Arg Arg Lys Ser Arg Asn Leu Gly Lys Val Ile Asp Thr Leu Thr Cys
 115 120 125

Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Gly Pro Val
 130 135 140

Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Val Leu Glu Asp
 145 150 155 160

Gly Val Asn Tyr Pro Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile
 165 170 175

Phe Ile Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Ala Ser Ala Val
 180 185 190

Pro Tyr Arg Asn Ala Ser Gly Ile Tyr His Val Thr Asn Asp Cys Pro
 195 200 205

Asn Ser Ser Ile Val Tyr Glu Ala Asp Asn Leu Ile Leu His Ala Pro
 210 215 220

Gly Cys Val Pro Cys Val Met Thr Gly Asn Val Ser Arg Cys Trp Val
 225 230 235 240

Gln Ile Thr Pro Thr Leu Ser Ala Pro Ser Leu Gly Ala Val Thr Ala

245

250

255

Pro Leu Arg Arg Ala Val Asp Tyr Leu Ala Gly Gly Ala Ala Leu Cys
 260 265 270

Ser Ala Leu Tyr Val Gly Asp Ala Cys Gly Ala Leu Phe Leu Val Gly
 275 280 285

Gln Met Phe Thr Tyr Arg Pro Arg Gln His Ala Thr Val Gln Asn Cys
 290 295 300

Asn Cys Ser Ile Tyr Ser Gly His Val Thr Gly His Arg Met Ala
 305 310 315

<210> 55

<211> 354

<212> DNA

<213> hepatitis C virus

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<222> (191)..(191)

<223> "n" is any nucleotide

<400> 55

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 attcttgga taggcactgt ccttgaccag gcagagacgg ctggagctag gctcgtcgtc 180
 ttggccacgg ncacccctcc cggcagtgtg acaacgcccc accccaacat cgaggaagtg 240
 gccctgcctc aggaggggga ggttccttc tacggcagag ccattcccct tgcttttata 300
 aagggtggtg ggcattctcat cttctgccat tccaagaaaa attgtgatga actc 354

<210> 56

<211> 118

<212> PRT

<213> hepatitis C virus

<220>

<221> MISC_FEATURE

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<223> "Xaa" is any amino acid

<400> 56

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1				5				10						15	

Asp	Gly	Gly	Cys	Ser	Gly	Gly	Ala	His	Asp	Val	Ile	Ile	Cys	Asp	Glu
			20					25					30		

Cys	His	Ser	Gln	Asp	Ala	Thr	Thr	Ile	Leu	Gly	Ile	Gly	Thr	Val	Leu
		35					40					45			

Asp	Gln	Ala	Glu	Thr	Ala	Gly	Ala	Arg	Leu	Val	Val	Leu	Ala	Thr	Xaa
	50					55					60				

Thr	Pro	Pro	Gly	Ser	Val	Thr	Thr	Pro	His	Pro	Asn	Ile	Glu	Glu	Val
65					70					75					80

Ala	Leu	Pro	Gln	Glu	Gly	Glu	Val	Pro	Phe	Tyr	Gly	Arg	Ala	Ile	Pro
			85						90					95	

Leu	Ala	Phe	Ile	Lys	Gly	Gly	Arg	His	Leu	Ile	Phe	Cys	His	Ser	Lys
			100					105					110		

Lys	Asn	Cys	Asp	Glu	Leu
					115

<210> 57

<211> 354

<212> DNA

<213> hepatitis C virus

<220>

<221> misc_feature

<222> (185)..(185)

<223> "n" is any nucleotide

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<222> (191)..(191)

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<222> (276)..(276)

<223> "n" is any nucleotide

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tcaggcggcg cgtatgacgt gatcatatgc gacgagtgcc attcccagga cgccaccacc 120

attcttggga taggcactgt ccttgaccag gcagagacgg ctggagctag gctcgtcgtc 180

ttggncacgg ncacccctcc cggcagtgtg acaacgcccc accccaacat cgaggaagtg 240

gccctgcctc aggaggggga ggttccttc tacggnagag ccattcccct tgcttttata 300

aagggtggta ggcatctcat cttctgccat tccaagaaaa aatgtgatga actt 354

<210> 58

<211> 133

<212> PRT

<213> hepatitis C virus

<220>

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<222> (62) .. (62)

<223> "Xaa" is any amino acid

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<222> (92) .. (92)

<223> "Xaa" is any amino acid

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1				5				10						15	

Asp	Gly	Gly	Cys	Ser	Gly	Gly	Ala	Tyr	Asp	Val	Ile	Ile	Cys	Asp	Glu
			20				25						30		

Cys	His	Ser	Gln	Asp	Ala	Thr	Thr	Ile	Leu	Gly	Ile	Gly	Thr	Val	Leu
		35				40					45				

Asp	Gln	Ala	Glu	Thr	Ala	Gly	Ala	Arg	Leu	Val	Val	Leu	Xaa	Thr	Xaa
	50					55					60				

Thr	Pro	Pro	Gly	Ser	Val	Thr	Thr	Pro	His	Pro	Asn	Ile	Glu	Glu	Val
65					70					75				80	

Ala Leu Pro Gln Glu Gly Glu Val Pro Phe Tyr Xaa Arg Ala Ile Pro

85

90

95

Leu Ala Phe Ile Lys Gly Gly Arg His Leu Ile Phe Cys His Ser Lys
100 105 110

Lys Lys Cys Asp Glu Leu Arg Gln Ala Thr Asp Gln Pro Gly Arg Glu
115 120 125

Arg Pro Trp Glu Tyr
130

<210> 59

<211> 357

<212> DNA

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<222> (38)..(38)

<223> "n" is any nucleotide

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<222> (76)..(76)

<223> "n" is any nucleotide

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<222> (79)..(79)

<223> "n" is any nucleotide

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<223> "n" is any nucleotide

<220>

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<222> (349)..(349)
<223> "n" is any nucleotide

<400> 59
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gttgtggcga ccctgncgnc ctactgcttg acggtgggtt cggtagccat agtcggtagg 120
atcatcctct ctgggaaacc tgccatcatt nccgataggg aggtattata ccagcaattt 180
gatgagatgg aggagtgtc ggcctcggtg ccctatatgg acgaaacacg tnccattgcc 240
ggacaattca aagagaaagt gtcgggttc atcagcacga ccggccagaa ggctgaaact 300
ctgaagccgg cagccacgtc tgtgtggaac aaggctgac agttctggnc cacatac 357

<210> 60

<211> 128

<212> PRT

<213> hepatitis C virus

<220>

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<223> "Xaa" is any amino acid

<220>

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<222> (26)..(27)

<223> "Xaa" is any amino acid

<220>

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<222> (51)..(51)

<223> "Xaa" is any amino acid

<220>

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<222> (78)..(78)

<223> "Xaa" is any amino acid

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<222> (117)..(117)

<223> "Xaa" is any amino acid

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1			5					10					15		

Leu	Val	Gly	Gly	Val	Val	Ala	Thr	Leu	Xaa	Xaa	Tyr	Cys	Leu	Thr	Val
		20						25					30		

Gly	Ser	Val	Ala	Ile	Val	Gly	Arg	Ile	Ile	Leu	Ser	Gly	Lys	Pro	Ala
		35					40					45			

Ile Ile Xaa Asp Arg Glu Val Leu Tyr Gln Gln Phe Asp Glu Met Glu
50 55 60

Glu Cys Ser Ala Ser Leu Pro Tyr Met Asp Glu Thr Arg Xaa Ile Ala
65 70 75 80

Gly Gln Phe Lys Glu Lys Val Leu Gly Phe Ile Ser Thr Thr Gly Gln
85 90 95

Lys Ala Glu Thr Leu Lys Pro Ala Ala Thr Ser Val Trp Asn Lys Ala
100 105 110

Asp Gln Phe Trp Xaa Thr Tyr Met Trp Asn Phe Ile Ser Gly Ile Gln
115 120 125

<210> 61

<211> 357

<212> DNA

<213> hepatitis C virus

<220>

<221> misc_feature

<222> (38)..(38)

<223> "n" is any nucleotide

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<222> (70)..(70)

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<222> (174)..(174)

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<222> (339)..(339)

<223> "n" is any nucleotide

<400> 61

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gttggtggcgn ccctggcggc ctactgcttg acggtgggtt cggtagccat agtcggtagg 120

atcatcctct ctgggaaacc tgccatcatt cccgataggg aggcattata ccancaattt 180

gatgagatgg aggagtgtc ggccctcggtg ccctatatgg acgagacacg tgccattgcc 240

ggacaattca aagagaaagt gtcgggttc atcagcacga ccggccagaa ggctgaaact 300

ctgaagccgg cagccacgtc tgtgtggaac aaggctganc agttctgggc cacatac 357

<210> 62

<211> 128

<212> PRT

<213> hepatitis C virus

<220>

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<222> (13)..(13)

<223> "Xaa" is any amino acid

<220>

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<222> (24)..(24)

<223> "Xaa" is any amino acid

<220>

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<222> (58) .. (58)

<223> "Xaa" is any amino acid

<220>

<221> MISC_FEATURE

<222> (113) .. (113)

<223> "Xaa" is any amino acid

<400> 62

Met	Ala	Cys	Met	Ser	Ala	Asp	Leu	Glu	Val	Ile	Thr	Xaa	Thr	Trp	Val
1				5					10					15	

Leu	Val	Gly	Gly	Val	Val	Ala	Xaa	Leu	Ala	Ala	Tyr	Cys	Leu	Thr	Val
		20						25					30		

Gly	Ser	Val	Ala	Ile	Val	Gly	Arg	Ile	Ile	Leu	Ser	Gly	Lys	Pro	Ala
		35					40					45			

Ile	Ile	Pro	Asp	Arg	Glu	Ala	Leu	Tyr	Xaa	Gln	Phe	Asp	Glu	Met	Glu
	50					55					60				

Glu	Cys	Ser	Ala	Ser	Leu	Pro	Tyr	Met	Asp	Glu	Thr	Arg	Ala	Ile	Ala
65					70					75				80	

Gly	Gln	Phe	Lys	Glu	Lys	Val	Leu	Gly	Phe	Ile	Ser	Thr	Thr	Gly	Gln
				85					90					95	

Lys	Ala	Glu	Thr	Leu	Lys	Pro	Ala	Ala	Thr	Ser	Val	Trp	Asn	Lys	Ala
			100					105						110	

Xaa	Gln	Phe	Trp	Ala	Thr	Tyr	Met	Trp	Asn	Phe	Ile	Ser	Gly	Ile	Gln
	115						120					125			

<210> 63

<211> 28
<212> DNA
<213> artificial

<220>
<221> misc_feature
<223> HCPPr161

<400> 63
accggaggcc aggagagtga tctcctcc 28

<210> 64
<211> 28
<212> DNA
<213> artificial

<220>
<221> misc_feature
<223> HCPPr162

<400> 64
gggctgctct atcctcatcg acgccatc 28

<210> 65
<211> 28
<212> DNA
<213> artificial

<220>
<221> misc_feature

<223> HCPr163

<400> 65
gccagaggct cggaaggcga tcagcgct 28

<210> 66

<211> 28

<212> DNA

<213> artificial

<220>

<221> misc_feature

<223> HCPr164

<400> 66
gagctgctct gtcctcctcg acgccgca 28

<210> 67

<211> 20

<212> DNA

<213> artificial

<220>

<221> misc_feature

<223> HCPr23

<400> 67
ctcatgggggt acattccgct 20

<210> 68

<211> 27

<212> DNA

<213> artificial

<220>

<221> misc_feature

<223> HCPr54

<400> 68

ctattaccag ttcatcatca tatccca

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<210> 69

<211> 24

<212> DNA

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<223> HCPr116

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<211> 33

<212> DNA

<213> artificial

<220>

<221> misc_feature

<223> HCPr66

<400> 70
ctattattgt atcccrctga tgaartcca cat 33

<210> 71
<211> 36
<212> DNA
<213> artificial

<220>
<221> misc_feature
<223> HCPr118

<400> 71
actagtcgac taytgatccr ctatrwartt ccacat 36

<210> 72
<211> 25
<212> DNA
<213> artificial

<220>
<221> misc_feature
<223> HCPr117

<400> 72
ttttaaatat atcgcrctgc atgca 25

<210> 73
<211> 36
<212> DNA
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<220>

<221> misc_feature

<223> HCPr119

<400> 73

actagtcgac tarttgcata gcckrttcat ccaytg

36

<210> 74

<211> 34

<212> DNA

<213> artificial

<220>

<221> misc_feature

<223> HCPr131

<400> 74

ggaattctag acctctggga ygaraytgga artg

34

<210> 75

<211> 31

<212> DNA

<213> artificial

<220>

<221> misc_feature

<223> HCPr130

<400> 75

ggaattctag acgctaycar gcacgttgyg c

31

<210> 76
<211> 23
<212> DNA
<213> artificial

<220>
<221> misc_feature
<223> HCPPr134

<400> 76
catatagatg cccacttcct atc

23

<210> 77
<211> 16
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<220>
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<223> HCPPr3

<400> 77
gtgtgccagg accatc

16

<210> 78
<211> 20
<212> DNA
<213> artificial

<220>
<221> misc_feature

<223> HCPPr4

<400> 78
gacatgcatg tcatgatgta

20

<210> 79

<211> 29

<212> DNA

<213> artificial

<220>

<221> misc_feature

<223> HCPPr152

<400> 79
tacgcctctt ctatatcggt tggggcctg

29

<210> 80

<211> 26

<212> DNA

<213> artificial

<220>

<221> misc_feature

<223> HCPPr52

<400> 80
atgttgggta aggtcatcga taccct

26

<210> 81

<211> 25

<212> DNA

<213> artificial

<220>

<221> misc_feature

<223> HCPr41

<400> 81

cccgggaggt ctcgtagacc gtgca

25

<210> 82

<211> 29

<212> DNA

<213> artificial

<220>

<221> misc_feature

<223> HCPr40

<400> 82

ctattaaaga tagagaaaga gcaaccggg

29

<210> 83

<211> 12

<212> PRT

<213> hepatitis C virus

<400> 83

Leu Glu Trp Arg Asn Thr Ser Gly Leu Tyr Val Leu
1 5 10

<210> 84

<211> 12

<212> PRT

<213> hepatitis C virus

<400> 84

Val	Pro	Tyr	Arg	Asn	Ala	Ser	Gly	Ile	Tyr	His	Val
1				5					10		

<210> 85

<211> 11

<212> PRT

<213> hepatitis C virus

<400> 85

Val	Tyr	Glu	Ala	Asp	Asp	Val	Ile	Leu	His	Thr
1				5					10	

<210> 86

<211> 11

<212> PRT

<213> hepatitis C virus

<400> 86

Val	Tyr	Glu	Ala	Asp	Asn	Leu	Ile	Leu	His	Ala
1				5					10	

<210> 87

<211> 13

<212> PRT

<213> hepatitis C virus

<400> 87

Val Gln Asp Gly Asn Thr Ser Thr Cys Trp Thr Pro Val
1 5 10

<210> 88

<211> 13

<212> PRT

<213> hepatitis C virus

<400> 88

Val Met Thr Gly Asn Val Ser Arg Cys Trp Val Gln Ile
1 5 10

<210> 89

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 89

Val Arg Tyr Val Gly Ala Thr Thr Ala Ser
1 5 10

<210> 90

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 90

Ala Pro Ser Leu Gly Ala Val Thr Ala Pro
1 5 10

<210> 91

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 91

Arg	Pro	Arg	Arg	His	Gln	Thr	Val	Gln	Thr
1				5				10	

<210> 92

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 92

Arg	Pro	Arg	Gln	His	Ala	Thr	Val	Gln	Asn
1				5				10	

<210> 93

<211> 9

<212> PRT

<213> hepatitis C virus

<400> 93

Gln	Pro	Thr	Gly	Arg	Ser	Trp	Gly	Gln
1				5				

<210> 94

<211> 8

<212> PRT

<213> hepatitis C virus

<400> 94

Val Gln Asp Gly Asn Thr Ser Thr
1 5

<210> 95

<211> 8

<212> PRT

<213> hepatitis C virus

<400> 95

Val Gln Asp Gly Asn Thr Ser Ala
1 5

<210> 96

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 96

Val Lys Tyr Val Gly Ala Thr Thr Ala Ser
1 5 10

<210> 97

<211> 20

<212> PRT

<213> hepatitis C virus

<400> 97

Leu Gly Gly Lys Pro Ala Ile Val Pro Asp Lys Glu Val Leu Tyr Gln
1 5 10 15

Gln Tyr Asp Glu
20

<210> 98

<211> 20

<212> PRT

<213> hepatitis C virus

<400> 98

Leu Gly Gly Lys Pro Ala Leu Val Pro Asp Lys Glu Val Leu Tyr Gln
1 5 10 15

Gln Tyr Asp Glu
20

<210> 99

<211> 20

<212> PRT

<213> hepatitis C virus

<400> 99

Ser Gln Ala Ala Pro Tyr Ile Glu Gln Ala Gln Val Ile Ala His Gln
1 5 10 15

Phe Lys Glu Lys
20

<210> 100

<211> 20

<212> PRT

<213> hepatitis C virus

<400> 100

Ile Ala His Gln Phe Lys Glu Lys Val Leu Gly Leu Leu Gln Arg Ala
1 5 10 15

Thr Gln Gln Gln

20

<210> 101

<211> 20

<212> PRT

<213> hepatitis C virus

<400> 101

Ile Ala His Gln Phe Lys Glu Lys Ile Leu Gly Leu Leu Gln Arg Ala
1 5 10 15

Thr Gln Gln Gln
20

<210> 102

<211> 20

<212> PRT

<213> hepatitis C virus

<400> 102

Leu Ser Gly Lys Pro Ala Ile Ile Pro Asp Arg Glu Ala Leu Tyr Gln
1 5 10 15

Gln Phe Asp Glu
20

<210> 103

<211> 20

<212> PRT

<213> hepatitis C virus

<400> 103

Leu Ser Gly Lys Pro Ala Ile Ile Pro Asp Arg Glu Val Leu Tyr Gln
1 5 10 15

Gln Phe Asp Glu
20

<210> 104

<211> 20

<212> PRT

<213> hepatitis C virus

<400> 104

Ser Ala Ser Leu Pro Tyr Met Asp Glu Thr Arg Ala Ile Ala Gly Gln
1 5 10 15

Phe Lys Glu Lys
20

<210> 105

<211> 20

<212> PRT

<213> hepatitis C virus

<400> 105

Ile Ala Gly Gln Phe Lys Glu Lys Val Leu Gly Phe Ile Ser Thr Thr
1 5 10 15

Gly Gln Lys Ala
20

<210> 106

<211> 340

<212> DNA

<213> hepatitis C virus

<400> 106

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ggagccccgaa gcccgcaagg caattaccgc cctaacagag agactctacg tgggcgggtcc 120
catgcataac agcaagggag acctgtgcgg gtatcgcaga tgtcgcgcaa gcggcgctcta 180
caccaccagc ttcgggaaca cactgacgtg ctacctcaaa gcctcagccg ctatcaaagc 240
ggcggggctg agagactgca ccatgttggt ctgtggtgat gacctggttg tcatcgctga 300
gagcgatggc gtagaggagg acaaacgacc cctcggagcc 340

<210> 107

<211> 113

<212> PRT

<213> hepatitis C virus

<400> 107

Ser Thr Val Thr Glu Lys Asp Ile Arg Val Glu Glu Glu Val Tyr Gln
1 5 10 15

Cys Cys Asp Leu Glu Pro Glu Ala Arg Lys Ala Ile Thr Ala Leu Thr
20 25 30

Glu Arg Leu Tyr Val Gly Gly Pro Met His Asn Ser Lys Gly Asp Leu
35 40 45

Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Tyr Thr Thr Ser Phe
50 55 60

Gly Asn Thr Leu Thr Cys Tyr Leu Lys Ala Ser Ala Ala Ile Lys Ala
65 70 75 80

Ala Gly Leu Arg Asp Cys Thr Met Leu Val Cys Gly Asp Asp Leu Val
85 90 95

Val Ile Ala Glu Ser Asp Gly Val Glu Glu Asp Lys Arg Pro Leu Gly
100 105 110

Ala

<210> 108

<211> 340

<212> DNA

<213> hepatitis C virus

<400> 108

```
ctccactgta accgaaaagg acatcagggg cgaggaggag gtatatcagt gttgtgacct    60
ggagcccagag gcccgagag caattaccgc cctaacagag agactctacg tgggcgggtcc    120
catgcataac agcagggggag acctgtgcgg gtatcgaga tgccgtgcga gcggcggtcta    180
caccaccagc ttcgggaaca cactgacgtg ctatctcaaa gcctcagccg ctatcagagc    240
ggcgggggctg agagactgca ccatgttggt ctgtggtgat gacctgggtcgc tcattgctga    300
aagcgatggc gtagaggagg acaaacgagc cctcggagcc    340
```

<210> 109

<211> 113

<212> PRT

<213> hepatitis C virus

<400> 109

```
Ser Thr Val Thr Glu Lys Asp Ile Arg Val Glu Glu Glu Val Tyr Gln
1          5          10          15
```

```
Cys Cys Asp Leu Glu Pro Glu Ala Arg Arg Ala Ile Thr Ala Leu Thr
          20          25          30
```

```
Glu Arg Leu Tyr Val Gly Gly Pro Met His Asn Ser Arg Gly Asp Leu
          35          40          45
```

```
Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Tyr Thr Thr Ser Phe
          50          55          60
```

```
Gly Asn Thr Leu Thr Cys Tyr Leu Lys Ala Ser Ala Ala Ile Arg Ala
65          70          75          80
```

Ala Gly Leu Arg Asp Cys Thr Met Leu Val Cys Gly Asp Asp Leu Val
85 90 95

Val Ile Ala Glu Ser Asp Gly Val Glu Glu Asp Lys Arg Ala Leu Gly
100 105 110

Ala

<210> 110

<211> 340

<212> DNA

<213> hepatitis C virus

<400> 110
ctccactgta accgaaaaag acatcagggg cgaggaggag gtatatcagt gttgtgacct 60
ggagcccgaa gcccgcaagg taattaccgc cctaacagag agactctatg tgggcgggtcc 120
catgcataat agcaaaggag acctgtgcgg gtatcgcaga tgccgcgcaa gcggcgtcta 180
caccaccagc ttcgggaaca cactgacgtg ctatctcaaa gcctcagccg ccatcagggc 240
gtcaggggctg agagactgca ctatgctggg ctatgggtgac gacctgggtcg tcattgccga 300
gagcgatggc gtagaggagg acaaacgagc cctcggagtc 340

<210> 111

<211> 113

<212> PRT

<213> hepatitis C virus

<400> 111

Ser Thr Val Thr Glu Lys Asp Ile Arg Val Glu Glu Glu Val Tyr Gln
1 5 10 15

Cys Cys Asp Leu Glu Pro Glu Ala Arg Lys Val Ile Thr Ala Leu Thr
20 25 30

Glu Arg Leu Tyr Val Gly Gly Pro Met His Asn Ser Lys Gly Asp Leu

35

40

45

Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Tyr Thr Thr Ser Phe
 50 55 60

Gly Asn Thr Leu Thr Cys Tyr Leu Lys Ala Ser Ala Ala Ile Arg Ala
 65 70 75 80

Ser Gly Leu Arg Asp Cys Thr Met Leu Val Tyr Gly Asp Asp Leu Val
 85 90 95

Val Ile Ala Glu Ser Asp Gly Val Glu Glu Asp Lys Arg Ala Leu Gly
 100 105 110

Val

<210> 112

<211> 340

<212> DNA

<213> hepatitis C virus

<400> 112

ctccactgta accgaaaagg acatcagggt cgaggaggag gtgtatcagt gttgtgacct 60
 ggagcccagag gcccgcaagg caattactgc cctaacagag agactctatg tgggcggtcc 120
 catgcataac agcaaggagg acctgtgtgg gtatcgaga tgccgcgcaa gcggcgtcta 180
 caccaccagc ttcgggaaca cactgacgtg ctacctcaaa gcctcagccg ctatcagagc 240
 ggcggggctg agagactgca ccatgttggt ctgtggtgat gacctggtcg tcatcgctga 300
 gagcgatggc gttgaggagg acaaacgagc cctcggagcc 340

<210> 113

<211> 113

<212> PRT

<213> hepatitis C virus

<400> 113

Ser Thr Val Thr Glu Lys Asp Ile Arg Val Glu Glu Glu Val Tyr Gln
1 5 10 15

Cys Cys Asp Leu Glu Pro Glu Ala Arg Lys Ala Ile Thr Ala Leu Thr
20 25 30

Glu Arg Leu Tyr Val Gly Gly Pro Met His Asn Ser Lys Gly Asp Leu
35 40 45

Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Tyr Thr Thr Ser Phe
50 55 60

Gly Asn Thr Leu Thr Cys Tyr Leu Lys Ala Ser Ala Ala Ile Arg Ala
65 70 75 80

Ala Gly Leu Arg Asp Cys Thr Met Leu Val Cys Gly Asp Asp Leu Val
85 90 95

Val Ile Ala Glu Ser Asp Gly Val Glu Glu Asp Lys Arg Ala Leu Gly
100 105 110

Ala

<210> 114

<211> 340

<212> DNA

<213> hepatitis C virus

<400> 114

ctccacggtg accgaaaggg atatcaggac cgaggaagag atctaccagt gctgcgacct 60
ggagcccga gcccgaagg tgatatccgc cctaacggaa agactctacg tgggcggtcc 120
catgtacaac tccaaggggg acctatgcgg gcaacggagg tgccgcgcaa gcggggtcta 180
caccaccagc ttcggaaca ctgtaacgtg ttatctcaag gccgttgcgg ctactagggc 240
cgcaggtctg aaagggtgca gcatgctggt ttgtggagac gacttagtcg tcatctgcga 300
gagcggcggc gtagaggagg atgcaagagc cctccgagcc 340

<210> 115

<211> 113

<212> PRT

<213> hepatitis C virus

<400> 115

Ser Thr Val Thr Glu Arg Asp Ile Arg Thr Glu Glu Glu Ile Tyr Gln
1 5 10 15

Cys Cys Asp Leu Glu Pro Glu Ala Arg Lys Val Ile Ser Ala Leu Thr
20 25 30

Glu Arg Leu Tyr Val Gly Gly Pro Met Tyr Asn Ser Lys Gly Asp Leu
35 40 45

Cys Gly Gln Arg Arg Cys Arg Ala Ser Gly Val Tyr Thr Thr Ser Phe
50 55 60

Gly Asn Thr Val Thr Cys Tyr Leu Lys Ala Val Ala Ala Thr Arg Ala
65 70 75 80

Ala Gly Leu Lys Gly Cys Ser Met Leu Val Cys Gly Asp Asp Leu Val
85 90 95

Val Ile Cys Glu Ser Gly Gly Val Glu Glu Asp Ala Arg Ala Leu Arg
100 105 110

Ala

<210> 116

<211> 340

<212> DNA

<213> hepatitis C virus

<400> 116

```

ctccactgtg actgagagag acatcaaggt cgaagaagaa gtctatcagt gttgtgatct      60
ggagccccgag gcccgcaagg taatagccgc cctcacggag agactctacg tgggcggccc      120
catgcataac agcaagggag acctttgcgg gtatcgtaga tgccgcgcga gcggcgata      180
caccaccagc ttcgggaaca caatgacgtg ctaccttaag gcctcagcag ccatcagggc      240
tgcggggcta aaggattgca ccatgctggt ttgcggtgac gacctagtcg tgatcgccga      300
gagcgggtggc gttgaggagg acaaacgagc cctcggagct      340

```

<210> 117

<211> 113

<212> PRT

<213> hepatitis C virus

<400> 117

```

Ser Thr Val Thr Glu Arg Asp Ile Lys Val Glu Glu Glu Val Tyr Gln
1           5           10          15

```

```

Cys Cys Asp Leu Glu Pro Glu Ala Arg Lys Val Ile Ala Ala Leu Thr
20           25           30

```

```

Glu Arg Leu Tyr Val Gly Gly Pro Met His Asn Ser Lys Gly Asp Leu
35           40           45

```

```

Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Tyr Thr Thr Ser Phe
50           55           60

```

```

Gly Asn Thr Met Thr Cys Tyr Leu Lys Ala Ser Ala Ala Ile Arg Ala
65           70           75           80

```

```

Ala Gly Leu Lys Asp Cys Thr Met Leu Val Cys Gly Asp Asp Leu Val
85           90           95

```

```

Val Ile Ala Glu Ser Gly Gly Val Glu Glu Asp Lys Arg Ala Leu Gly
100          105          110

```

Ala

<210> 118

<211> 574

<212> DNA

<213> hepatitis C virus

<400> 118

```
acttgcggct ttgccgacct catgggatac atcccgctcg taggcgcccc tgtgggtggc      60
gtcgccaggg ccctggcaca cgggtgtagg gctgtggagg acgggatcaa ttatgcgaca      120
gggaatcttc ccggttgctc tttctctatc ttctcttgg cacttctttc gtgcctgact      180
gttcccacct cggccgtcaa ctatcgcaat gcctcgggca tctatcacat caccaatgac      240
tgcccgaact cgagcatagt gtacgagacc gagcaccaca tcctacacct cccaggggtgt      300
ttaccctgcg tgagggttgg gaatcagtca cgctgctggg tggccctcac tcccaccgtg      360
gcggcgctt acatcggcgc tccgcttgaa tccctccgga gtcatgtgga tctgatggta      420
ggtgccgcta ctgctgctc cgctctttac atcggagacc tgtgcggtgg cgtattcttg      480
gttggtcaga tgttctcttt ccagccgcgg cgccactgga ctacgcagga ctgcaattgt      540
tccatctacg cggggcacgt tacggggcac agga                                  574
```

<210> 119

<211> 191

<212> PRT

<213> hepatitis C virus

<400> 119

```
Thr Cys Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala
1           5           10          15
```

```
Pro Val Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Ala Val
20          25          30
```

```
Glu Asp Gly Ile Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe
35          40          45
```

```
Ser Ile Phe Leu Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Thr Ser
```

50

55

60

Ala Val Asn Tyr Arg Asn Ala Ser Gly Ile Tyr His Ile Thr Asn Asp
65 70 75 80

Cys Pro Asn Ser Ser Ile Val Tyr Glu Thr Glu His His Ile Leu His
85 90 95

Leu Pro Gly Cys Leu Pro Cys Val Arg Val Gly Asn Gln Ser Arg Cys
100 105 110

Trp Val Ala Leu Thr Pro Thr Val Ala Ala Pro Tyr Ile Gly Ala Pro
115 120 125

Leu Glu Ser Leu Arg Ser His Val Asp Leu Met Val Gly Ala Ala Thr
130 135 140

Ala Cys Ser Ala Leu Tyr Ile Gly Asp Leu Cys Gly Gly Val Phe Leu
145 150 155 160

Val Gly Gln Met Phe Ser Phe Gln Pro Arg Arg His Trp Thr Thr Gln
165 170 175

Asp Cys Asn Cys Ser Ile Tyr Ala Gly His Val Thr Gly His Arg
180 185 190

<210> 120

<211> 574

<212> DNA

<213> hepatitis C virus

<400> 120

acgtgcggct ttgccgacct catgggatac atcccgctcg tgggcgcccc tgtgggtggc 60

gtcgccaggg ccttggcaca tgggtgtcagg gccgtggagg acgggattaa ctatgcaaca 120

gggaatcttc ccggttgctc cttttctatc ttccttctag cacttctctc gtgcttgact 180

gtcccggcct cggcgcagca ctaccggaac atctcgggca tttatcacgt caccaatgac 240

tgcccgaact ctagtatagt gtatgaagct gaccatcata tcatgcatct accagggtgt 300

gtgccttgcg tgagaaccgg gaacacctcg cgctgctggg ttcctttaac acccactgtg 360
gctgccccct atgttgggcg gccgctcgaa tccatgcggc ggcacgtgga cttaatggtg 420
ggcgccgcca ccgtctgctc ggccctgtac atcggagacc tttgcggagg tgtcttctg 480
gtcgggcaga tgttcacctt ccggccgcg cgcattgga ctaccagga ctgcaactgc 540
tctatctatg atggccacat caccggccat agaa 574

<210> 121

<211> 191

<212> PRT

<213> hepatitis C virus

<400> 121

Thr Cys Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala
1 5 10 15

Pro Val Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Ala Val
20 25 30

Glu Asp Gly Ile Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe
35 40 45

Ser Ile Phe Leu Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Ala Ser
50 55 60

Ala Gln His Tyr Arg Asn Ile Ser Gly Ile Tyr His Val Thr Asn Asp
65 70 75 80

Cys Pro Asn Ser Ser Ile Val Tyr Glu Ala Asp His His Ile Met His
85 90 95

Leu Pro Gly Cys Val Pro Cys Val Arg Thr Gly Asn Thr Ser Arg Cys
100 105 110

Trp Val Pro Leu Thr Pro Thr Val Ala Ala Pro Tyr Val Gly Ala Pro
115 120 125

Leu Glu Ser Met Arg Arg His Val Asp Leu Met Val Gly Ala Ala Thr
130 135 140

Val Cys Ser Ala Leu Tyr Ile Gly Asp Leu Cys Gly Gly Val Phe Leu
 145 150 155 160

Val Gly Gln Met Phe Thr Phe Arg Pro Arg Arg His Trp Thr Thr Gln
 165 170 175

Asp Cys Asn Cys Ser Ile Tyr Asp Gly His Ile Thr Gly His Arg
 180 185 190

<210> 122

<211> 574

<212> DNA

<213> hepatitis C virus

<400> 122

acgtgcggtc tcgccgacct catgggatac atcccgctcg tgggcgcccc cggtgggggc 60
 gtcgccaggg ccctggcgca tggcgtcagg gctgtggagg acgggattaa ctatgcgaca 120
 gggaatcttc ccggttgctc tttctctatc ttctctctgg cacttctttc gtgcctcact 180
 gtcccagcgt cagctgagca ctaccggaat gttcgggca tctatcacat caccaatgac 240
 tgtccgaatt ccagcgtagt ctatgaaact gaccaccata tattgcactt gccgggggtgc 300
 gtaccctgcg tgagggccgg gaacgtgtct cggtgctgga cgccggtaac acctacggtg 360
 gctgccgtat ccatggacgc tccgctcgag tccttccggc ggcattgtgga cctaattgga 420
 ggtgcgggcca ccgtgtgttc tgcctctatc gttggagacc tctgtggagg tgctttccta 480
 gtggggcaga tgttcacctt ccagccgctg cgccactgga ccacgcagga ttgtaattgc 540
 tccatctata ctggccatat caccggccac agga 574

<210> 123

<211> 191

<212> PRT

<213> hepatitis C virus

<400> 123

Thr Cys Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala
1 5 10 15

Pro Val Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Ala Val
20 25 30

Glu Asp Gly Ile Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe
35 40 45

Ser Ile Phe Leu Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Ala Ser
50 55 60

Ala Glu His Tyr Arg Asn Ala Ser Gly Ile Tyr His Ile Thr Asn Asp
65 70 75 80

Cys Pro Asn Ser Ser Val Val Tyr Glu Thr Asp His His Ile Leu His
85 90 95

Leu Pro Gly Cys Val Pro Cys Val Arg Ala Gly Asn Val Ser Arg Cys
100 105 110

Trp Thr Pro Val Thr Pro Thr Val Ala Ala Val Ser Met Asp Ala Pro
115 120 125

Leu Glu Ser Phe Arg Arg His Val Asp Leu Met Val Gly Ala Ala Thr
130 135 140

Val Cys Ser Val Leu Tyr Val Gly Asp Leu Cys Gly Gly Ala Phe Leu
145 150 155 160

Val Gly Gln Met Phe Thr Phe Gln Pro Arg Arg His Trp Thr Thr Gln
165 170 175

Asp Cys Asn Cys Ser Ile Tyr Thr Gly His Ile Thr Gly His Arg
180 185 190

<210> 124

<211> 31

<212> DNA

<213> artificial

<220>

<221> misc_feature

<223> HCPr206

<400> 124

tggggatccc gtatgatacc cgctgctttg a

31

<210> 125

<211> 30

<212> DNA

<213> artificial

<220>

<221> misc_feature

<223> HCPr207

<400> 125

ggcggaattc ctggatcatag cctccgtgaa

30

<210> 126

<211> 12

<212> PRT

<213> hepatitis C virus

<400> 126

Val Asn Tyr Arg Asn Ala Ser Gly Ile Tyr His Ile
1 5 10

<210> 127

<211> 12

<212> PRT

<213> hepatitis C virus

<400> 127

Gln	His	Tyr	Arg	Asn	Ile	Ser	Gly	Ile	Tyr	His	Val
1				5					10		

<210> 128

<211> 12

<212> PRT

<213> hepatitis C virus

<400> 128

Glu	His	Tyr	Arg	Asn	Ala	Ser	Gly	Ile	Tyr	His	Ile
1				5					10		

<210> 129

<211> 11

<212> PRT

<213> hepatitis C virus

<400> 129

Val	Tyr	Glu	Thr	Glu	His	His	Ile	Leu	His	Leu
1				5					10	

<210> 130

<211> 11

<212> PRT

<213> hepatitis C virus

<400> 130

Val Tyr Glu Ala Asp His His Ile Met His Leu
1 5 10

<210> 131

<211> 11

<212> PRT

<213> hepatitis C virus

<400> 131

Val Tyr Glu Thr Asp His His Ile Leu His Leu
1 5 10

<210> 132

<211> 13

<212> PRT

<213> hepatitis C virus

<400> 132

Val Arg Val Gly Asn Gln Ser Arg Cys Trp Val Ala Leu
1 5 10

<210> 133

<211> 13

<212> PRT

<213> hepatitis C virus

<400> 133

Val Arg Thr Gly Asn Thr Ser Arg Cys Trp Val Pro Leu
1 5 10

<210> 134

<211> 13

<212> PRT

<213> hepatitis C virus

<400> 134

Val	Arg	Ala	Gly	Asn	Val	Ser	Arg	Cys	Trp	Thr	Pro	Val
1				5					10			

<210> 135

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 135

Ala	Pro	Tyr	Ile	Gly	Ala	Pro	Leu	Glu	Ser
1				5					10

<210> 136

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 136

Ala	Pro	Tyr	Val	Gly	Ala	Pro	Leu	Glu	Ser
1				5					10

<210> 137

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 137

Ala Val Ser Met Asp Ala Pro Leu Glu Ser
1 5 10

<210> 138

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 138

Gln Pro Arg Arg His Trp Thr Thr Gln Asp
1 5 10

<210> 139

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 139

Arg Pro Arg Arg His Trp Thr Thr Gln Asp
1 5 10

<210> 140

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 140

Arg Pro Arg Arg His Trp Thr Thr Gln Asp
1 5 10

<210> 141

<211> 23

<212> DNA

<213> artificial

<220>

<221> misc_feature

<223> HCPr109

<400> 141

tgggatatga tgatgaactg gtc

23

<210> 142

<211> 24

<212> DNA

<213> artificial

<220>

<221> misc_feature

<223> HCPr14

<400> 142

ccaggtacaa ccgaaccaat tgcc

24

<210> 143

<211> 957

<212> DNA

<213> hepatitis C virus

<400> 143

atgagcacia atcctaaacc tcaaagaaaa accaaaaagaa acactaaccg ccgcccacag

60

gacgtcaagt tcccgggagg tggccagatc gttggtggag tatacttggt gccgcgcagg

120

ggcccccggt tgggtgtgag cgcgacgagg aaaacttccg agcgggtccca gccacgtggg

180

```

aggcgccagc ccatcccaa agatcggcgc cccactggca agtcctgggg aaaaccagga      240
tacccttggc ccctgtacgg gaatgagggc ctcggtggg cagggaggct cctgtccccc      300
cgaggggtctc gcccgtcatg gggcccaact gacccccggc acaggtcacg caacttgggt      360
aaggtcatcg atacccttac gtgtggcttt gccgacctca tggggtacat ccctgtcgtc      420
ggcgccccag ttggtggtgt cgccagagct ctgcgcatg gcgtgagagt tctggaagac      480
gggataaact atgcaacagg gaacttgccc gggtgctcct tttctatctt cttattggcc      540
ctgctatctt gtatcactgt gccggtctcc ggcttgagg tcaagaacac cagcagctct      600
tacatggtaa ccaatgactg ccagaacagt agcatcgtct ggcagctcag ggatgctggt      660
cttcacgtcc ccgggtgtgt cccttgtag gagaaaggca acatatcccg ctgttgata      720
ccggtttcgc ccaatatagc tgtgagcaa cctggtgcgc ttaccaaggg cctgcggacg      780
catattgata ccatcattgc atccgctacg ttttgctctg ccctgtacat aggagacctg      840
tgtggcgcgg tgatgttggc ttctcaagtc ttcatcatct cgccccagca tcataagttt      900

gtccaggact gcaactgttc catataccca ggccacatca ctggacatcg gatggcg      957

```

<210> 144

<211> 319

<212> PRT

<213> hepatitis C virus

<400> 144

```

Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn
1           5           10          15

```

```

Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly
          20          25          30

```

```

Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala
          35          40          45

```

```

Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro
          50          55          60

```

Ile Pro Lys Asp Arg Arg Pro Thr Gly Lys Ser Trp Gly Lys Pro Gly
65 70 75 80

Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Leu Gly Trp Ala Gly Trp
85 90 95

Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Thr Asp Pro
100 105 110

Arg His Arg Ser Arg Asn Leu Gly Lys Val Ile Asp Thr Leu Thr Cys
115 120 125

Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Val Val Gly Ala Pro Val
130 135 140

Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Val Leu Glu Asp
145 150 155 160

Gly Ile Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile
165 170 175

Phe Leu Leu Ala Leu Leu Ser Cys Ile Thr Val Pro Val Ser Gly Leu
180 185 190

Gln Val Lys Asn Thr Ser Ser Ser Tyr Met Val Thr Asn Asp Cys Gln
195 200 205

Asn Ser Ser Ile Val Trp Gln Leu Arg Asp Ala Val Leu His Val Pro
210 215 220

Gly Cys Val Pro Cys Glu Glu Lys Gly Asn Ile Ser Arg Cys Trp Ile
225 230 235 240

Pro Val Ser Pro Asn Ile Ala Val Ser Gln Pro Gly Ala Leu Thr Lys
245 250 255

Gly Leu Arg Thr His Ile Asp Thr Ile Ile Ala Ser Ala Thr Phe Cys
260 265 270

Ser Ala Leu Tyr Ile Gly Asp Leu Cys Gly Ala Val Met Leu Ala Ser
275 280 285

Gln Val Phe Ile Ile Ser Pro Gln His His Lys Phe Val Gln Asp Cys

290

295

300

Asn Cys Ser Ile Tyr Pro Gly His Ile Thr Gly His Arg Met Ala
 305 310 315

<210> 145

<211> 340

<212> DNA

<213> hepatitis C virus

<400> 145

ctcaacggtc acggagaggg acatcagaac tgaggagtcc atataccttg cttgctcttt 60
 acccgagcag gcacggactg ccatacactc actgactgag aggctttacg tgggagggcc 120
 catgctaaac agcaaagggc aaacctgcgg atacagacgc tgccgcgcca gcggagtgtt 180
 caccactagc atgggaaata ccatcacgtg ctacgtgaag gcacaagcag cctgtaaggc 240
 tgcgggcata attgccccca cgatgctggt gtgcggcgac gatctagttg tcatctcaga 300
 gagtcagggg accgaggagg acgagcggaa cctacgagcc 340

<210> 146

<211> 113

<212> PRT

<213> hepatitis C virus

<400> 146

Ser Thr Val Thr Glu Arg Asp Ile Arg Thr Glu Glu Ser Ile Tyr Leu
 1 5 10 15

Ala Cys Ser Leu Pro Glu Gln Ala Arg Thr Ala Ile His Ser Leu Thr
 20 25 30

Glu Arg Leu Tyr Val Gly Gly Pro Met Leu Asn Ser Lys Gly Gln Thr
 35 40 45

Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Phe Thr Thr Ser Met
 50 55 60

Gly Asn Thr Ile Thr Cys Tyr Val Lys Ala Gln Ala Ala Cys Lys Ala
65 70 75 80

Ala Gly Ile Ile Ala Pro Thr Met Leu Val Cys Gly Asp Asp Leu Val
85 90 95

Val Ile Ser Glu Ser Gln Gly Thr Glu Glu Asp Glu Arg Asn Leu Arg
100 105 110

Ala

<210> 147
<211> 346
<212> DNA
<213> hepatitis C virus

<220>
<221> variation
<222> (50)
<223> n = s = c or g

<400> 147
atgagcacac ttcctaaacc acaaagaaaa accaaaagaa acaccaaccn ccggccacag 60
gacgttaagt tcccaggcgg cggtcagatc gttggtggag tttacgtgct accacgcagg 120
ggcccccagt tgggtgtgcg tgcagtgcgc aagacttccg agcggtcgca acctcgcagt 180
aggcgccaac ccatccccag ggcgcgccga accgagggca ggtcctgggc tcagccccgg 240
tacccttggc ccctatatgg gaatgagggc tgcgggtggg cagggtggct cctgtccccg 300
cgcggtcttc gcccgctcgtg gggcccaaat gacccccggc gcagga 346

<210> 148
<211> 115
<212> PRT
<213> hepatitis C virus

<220>
<221> VARIANT
<222> (17)
<223> X = Pro or Arg

<400> 148
Met Ser Thr Leu Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn
1 5 10 15

Xaa Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly
20 25 30

Gly Val Tyr Val Leu Pro Arg Arg Gly Pro Gln Leu Gly Val Arg Ala
35 40 45

Val Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Ser Arg Arg Gln Pro

50	55	60
Ile Pro Arg Ala Arg Arg Thr Glu Gly Arg Ser Trp Ala Gln Pro Gly		
65	70	75 80
Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Cys Gly Trp Ala Gly Trp		
	85	90 95
Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Asn Asp Pro		
	100	105 110
Arg Arg Arg		
115		

<210> 149

<211> 280

<212> DNA

<213> hepatitis C virus

<400> 149	
ggcctgtgac ctcaaggacg aggctaggag ggtgataact tcactcacgg agcggcttta	60
ctgtgggtggt cctatgttca acagcaaggg acaacactgc ggttaccgcc gctgccgtgc	120
tagtgggggtg ctaccaccca gcttcgggaa cacaatcacc tgttacatca aagcaaaggc	180
agctaccaaa gctgccggaa ttaaaaatcc atcattcctt gtctgcggag atgacttggt	240
cgtgattgct gagagtgcag ggatcgatga ggacagagcg	280

<210> 150

<211> 93

<212> PRT

<213> hepatitis C virus

<400> 150

Ala Cys Asp Leu Lys Asp Glu Ala Arg Arg Val Ile Thr Ser Leu Thr
1 5 10 15
Glu Arg Leu Tyr Cys Gly Gly Pro Met Phe Asn Ser Lys Gly Gln His
20 25 30

Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Leu Pro Thr Ser Phe
 35 40 45

Gly Asn Thr Ile Thr Cys Tyr Ile Lys Ala Lys Ala Ala Thr Lys Ala
 50 55 60

Ala Gly Ile Lys Asn Pro Ser Phe Leu Val Cys Gly Asp Asp Leu Val
 65 70 75 80

Val Ile Ala Glu Ser Ala Gly Ile Asp Glu Asp Arg Ala
 85 90

<210> 151

<211> 499

<212> DNA

<213> hepatitis C virus

<400> 151

atgagcacga atcctaaacc tcaaagaaaa accaaaagaa acaccaaccg tcgcccacag	60
gacgtcaagt tcccggggcgg tggtcagatc gttggcggag tttacttggt gccgcgcagg	120
ggccctagga tgggtgtgcg cgcgactcgg aagacttcgg aacggtcgca accccgtgga	180
cggcgtcagc ctattcccaa ggcgcgccag cccacggggc ggtcctgggg tcaaccggg	240
tacccttggc ccctttacgc caatgagggc ctcgggtggg caggggtggct gctctcccct	300
cgaggctctc ggcctaattg gggccccaat gacccccggc gaaaatcgcg taatttgggt	360
aaggatcatcg ataccctaac gtgcggattc gccgatctca tggggatatat cccgctcgta	420
ggcggcccca ttggggggcgt cgcaagggct ctcgcacacg gtgtgagggt ccttgaggac	480
ggggtaaaact atgcaacag	499

<210> 152

<211> 166

<212> PRT

<213> hepatitis C virus

<400> 152

Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn
 1 5 10 15

Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly
 20 25 30

Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Met Gly Val Arg Ala
 35 40 45

Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro
 50 55 60

Ile Pro Lys Ala Arg Gln Pro Thr Gly Arg Ser Trp Gly Gln Pro Gly
 65 70 75 80

Tyr Pro Trp Pro Leu Tyr Ala Asn Glu Gly Leu Gly Trp Ala Gly Trp
 85 90 95

Leu Leu Ser Pro Arg Gly Ser Arg Pro Asn Trp Gly Pro Asn Asp Pro
 100 105 110

Arg Arg Lys Ser Arg Asn Leu Gly Lys Val Ile Asp Thr Leu Thr Cys
 115 120 125

Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Gly Pro Ile
 130 135 140

Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Val Leu Glu Asp
 145 150 155 160

Gly Val Asn Tyr Ala Thr
 165

<210> 153

<211> 579

<212> DNA

<213> hepatitis C virus

<400> 153
 acgtgcggat tcgccgatct catggggtac atcccgctcg taggcggccc cgttgggggc

```

gtcgcaaggg ctctcgaca cgggtgtgagg gtccttgagg acggggtaaa ctatccaaca 120
gggaatttac ccggttgctc tttctctatc tttattcttg ctcttctctc gtgtctgacc 180
gttccggcct ctgcagttcc ctaccgaaat gcctctggga tttatcatgt taccaatgat 240
tgcccaaact cttccatagt ctatgaggca gataacctga tcctacacgc acctggttgc 300
gtgccttggtg tcatgacagg taatgtgagt agatgctggg tccaaattac ccctacactg 360
tcagccccga gcctcggagc agtcacggct cctcttcgga gagccgttga ctacctagcg 420
ggaggggctg ccctctgctc cgcgttatac gtaggagacg cgtgtggggc actattcttg 480
gtaggccaaa tgttcaccta taggcctcgc cagcacgcta cgggtgcagaa ctgcaactgt 540
tccatttaca gtggccatgt taccggccac cggatggcg 579

```

<210> 154

<211> 193

<212> PRT

<213> hepatitis C virus

<400> 154

```

Thr Cys Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Gly
1           5           10           15

```

```

Pro Val Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Val Leu
          20           25           30

```

```

Glu Asp Gly Val Asn Tyr Pro Thr Gly Asn Leu Pro Gly Cys Ser Phe
          35           40           45

```

```

Ser Ile Phe Ile Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Ala Ser
          50           55           60

```

```

Ala Val Pro Tyr Arg Asn Ala Ser Gly Ile Tyr His Val Thr Asn Asp
65           70           75           80

```

```

Cys Pro Asn Ser Ser Ile Val Tyr Glu Ala Asp Asn Leu Ile Leu His
          85           90           95

```

Ala Pro Gly Cys Val Pro Cys Val Met Thr Gly Asn Val Ser Arg Cys
 100 105 110

Trp Val Gln Ile Thr Pro Thr Leu Ser Ala Pro Ser Leu Gly Ala Val
 115 120 125

Thr Ala Pro Leu Arg Arg Ala Val Asp Tyr Leu Ala Gly Gly Ala Ala
 130 135 140

Leu Cys Ser Ala Leu Tyr Val Gly Asp Ala Cys Gly Ala Leu Phe Leu
 145 150 155 160

Val Gly Gln Met Phe Thr Tyr Arg Pro Arg Gln His Ala Thr Val Gln
 165 170 175

Asn Cys Asn Cys Ser Ile Tyr Ser Gly His Val Thr Gly His Arg Met
 180 185 190

Ala

<210> 155

<211> 579

<212> DNA

<213> hepatitis C virus

<400> 155

acgtgcggat tgcgcgacct cgtgggggtac atcccgctcg taggcggccc cgttgggggc	60
gtcgcaaggg ctctcgcaaca tgggtgtgagg gttcttgagg acgggggtgaa ttatgcaaca	120
gggaatctgc ctggttgctc tttctctatc ttcattcttg cacttctctc gtgcctcact	180
gtcccggcct ctgcagttcc ctaccgaaat gcctctggga tctatcatgt caccaatgat	240
tgcccaaact cttccatagt ctatgaggca gatgatctga tcctacacgc acctggctgc	300
gtgccttggtg tcaggaaaga taatgtgagt aggtgctggg tccaaattac cccacgctg	360
tcagccccga gcttcggagc agtcacggct ccccttcgga gagccgttga ttacttggtg	420
ggaggggctg ccctctgctc cgcgttatac gttggagacg cgtgtggggc actatTTTTg	480
gtaggccaaa tggtcaccta taggcctcgc cagcatgcta cggtgcagga ctgcaactgt	540

tccatctaca gtggccacgt caccggccat cagatggca

579

<210> 156

<211> 193

<212> PRT

<213> hepatitis C virus

<400> 156

Thr Cys Gly Phe Ala Asp Leu Val Gly Tyr Ile Pro Leu Val Gly Gly
1 5 10 15

Pro Val Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Val Leu
20 25 30

Glu Asp Gly Val Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe
35 40 45

Ser Ile Phe Ile Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Ala Ser
50 55 60

Ala Val Pro Tyr Arg Asn Ala Ser Gly Ile Tyr His Val Thr Asn Asp
65 70 75 80

Cys Pro Asn Ser Ser Ile Val Tyr Glu Ala Asp Asp Leu Ile Leu His
85 90 95

Ala Pro Gly Cys Val Pro Cys Val Arg Lys Asp Asn Val Ser Arg Cys
100 105 110

Trp Val Gln Ile Thr Pro Thr Leu Ser Ala Pro Ser Phe Gly Ala Val
115 120 125

Thr Ala Pro Leu Arg Arg Ala Val Asp Tyr Leu Val Gly Gly Ala Ala
130 135 140

Leu Cys Ser Ala Leu Tyr Val Gly Asp Ala Cys Gly Ala Leu Phe Leu
145 150 155 160

Val Gly Gln Met Phe Thr Tyr Arg Pro Arg Gln His Ala Thr Val Gln
165 170 175

Asp Cys Asn Cys Ser Ile Tyr Ser Gly His Val Thr Gly His Gln Met
 180 185 190

Ala

<210> 157

<211> 530

<212> DNA

<213> hepatitis C virus

<400> 157
 cacctacgac agctctgctg gtggcccagt tactgcggat tccccaagtg gtcattgaca 60
 tcatcgcagg gagccactgg ggggtcttgt ttgccgccgc atactatgca tcggtggcta 120
 actggaccaa ggtcgtgctg gtcttgtttc tgtttgcagg ggttgatgct actaccaga 180
 tttcgggcgg ctccagcgcc caaacgacgt atggcatcgc ctcatattac acccgcggcg 240
 cgcagcagaa actgcagctc ataaatacca acggaagctg gcacatcaac aggaccgccc 300
 ttaattgtaa tgacagctc cagactgggt tcatagccgg cctcttctac taccataagt 360
 tcaactcttc tggatgcccg gatcggatgg ctagctgtag ggcccttgcc acttttgacc 420
 agggctgggg aactatcagc tatgccaaca tatcgggtcc cagtgatgac aaaccatatt 480
 gctggcacta tccccacgg ccgtgcggag tggtgccagc ccaagaggtc 530

<210> 158

<211> 176

<212> PRT

<213> hepatitis C virus

<400> 158

Pro Thr Thr Ala Leu Leu Val Ala Gln Leu Leu Arg Ile Pro Gln Val
 1 5 10 15

Val Ile Asp Ile Ile Ala Gly Ser His Trp Gly Val Leu Phe Ala Ala
 20 25 30

Ala Tyr Tyr Ala Ser Val Ala Asn Trp Thr Lys Val Val Leu Val Leu
 35 40 45

Phe Leu Phe Ala Gly Val Asp Ala Thr Thr Gln Ile Ser Gly Gly Ser
 50 55 60

Ser Ala Gln Thr Thr Tyr Gly Ile Ala Ser Phe Ile Thr Arg Gly Ala
 65 70 75 80

Gln Gln Lys Leu Gln Leu Ile Asn Thr Asn Gly Ser Trp His Ile Asn
 85 90 95

Arg Thr Ala Leu Asn Cys Asn Asp Ser Leu Gln Thr Gly Phe Ile Ala
 100 105 110

Gly Leu Phe Tyr Tyr His Lys Phe Asn Ser Ser Gly Cys Pro Asp Arg
 115 120 125

Met Ala Ser Cys Arg Ala Leu Ala Thr Phe Asp Gln Gly Trp Gly Thr
 130 135 140

Ile Ser Tyr Ala Asn Ile Ser Gly Pro Ser Asp Asp Lys Pro Tyr Cys
 145 150 155 160

Trp His Tyr Pro Pro Arg Pro Cys Gly Val Val Pro Ala Gln Glu Val
 165 170 175

<210> 159

<211> 340

<212> DNA

<213> hepatitis C virus

<400> 159
 ctcgaccgtt accgaacatg acataatgac cgaagagtcc atttaccat catgtgactt 60
 gcagcccag gcacgcgcag caatacggtc actcaccxaa cgcctctact gtggaggccc 120
 catgtacaac agcaaggggc aacagtgtgg ttatcgaga tgccgcgcca gcggcgtttt 180

caccaccagt atgggcaaca ccatgacgtg ctacatcaag gctttagcct cctgtagagc 240
 cgcaaggctc cgggactgca cgctcctggg gtgtggtgac gatcttgtgg ccactctgca 300
 gagccagggg acacacgagg atgaagcaag cctgagagcc 340

<210> 160

<211> 113

<212> PRT

<213> hepatitis C virus

<400> 160

Ser Thr Val Thr Glu His Asp Ile Met Thr Glu Glu Ser Ile Tyr Gln
 1 5 10 15

Ser Cys Asp Leu Gln Pro Glu Ala Arg Ala Ala Ile Arg Ser Leu Thr
 20 25 30

Gln Arg Leu Tyr Cys Gly Gly Pro Met Tyr Asn Ser Lys Gly Gln Gln
 35 40 45

Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Phe Thr Thr Ser Met
 50 55 60

Gly Asn Thr Met Thr Cys Tyr Ile Lys Ala Leu Ala Ser Cys Arg Ala
 65 70 75 80

Ala Arg Leu Arg Asp Cys Thr Leu Leu Val Cys Gly Asp Asp Leu Val
 85 90 95

Ala Ile Cys Glu Ser Gln Gly Thr His Glu Asp Glu Ala Ser Leu Arg
 100 105 110

Ala

<210> 161

<211> 340

<212> DNA

<213> hepatitis C virus

<400> 161
ctcaaccgcc accgaacatg acatattgac tgaagagtcc atataccaat catgtgactc 60
gcagcccgcac gcacgcgcag caatacggtc actcacccaa cgcttggttct gtggaggccc 120
catgtataac agcaaggggc aacaatgtgg ttatcgcaga tgccgcgcca gcggcgtctt 180
caccaccagt atggggcaaca ccatgacgtg ctacattaag gctttagcct cctgtagaac 240
cgctggggctc cgggactaca cgctcctggt gtgtgggtgac gatcatgtgg ccactctgcga 300
gagccagggg acacacgagg atgaagcgaa cctgagagcc 340

<210> 162

<211> 113

<212> PRT

<213> hepatitis C virus

<400> 162

Ser Thr Ala Thr Glu His Asp Ile Leu Thr Glu Glu Ser Ile Tyr Gln
1 5 10 15

Ser Cys Asp Ser Gln Pro Asp Ala Arg Ala Ala Ile Arg Ser Leu Thr
20 25 30

Gln Arg Leu Phe Cys Gly Gly Pro Met Tyr Asn Ser Lys Gly Gln Gln
35 40 45

Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Phe Thr Thr Ser Met
50 55 60

Gly Asn Thr Met Thr Cys Tyr Ile Lys Ala Leu Ala Ser Cys Arg Thr
65 70 75 80

Ala Gly Leu Arg Asp Tyr Thr Leu Leu Val Cys Gly Asp Asp His Val
85 90 95

Ala Ile Cys Glu Ser Gln Gly Thr His Glu Asp Glu Ala Asn Leu Arg
100 105 110

Ala

<210> 163

<211> 499

<212> DNA

<213> hepatitis C virus

<400> 163

```
atgagcacga atcctaaact tcaaagaaaa accaaacgta acaccaaccg ccgccccatg      60
gacgttaagt tcccgggtgg tggccagatc gttggcggag tttacttggt gccgcgcagg      120
ggccctaggt tgggtgtgcg cgcgactcgg aagacttcgg agcggtcgca acctcgtggg      180
aggcgccaac ctatccccaa ggcgcgccga tccgagggca gatcctgggc gcagcccggg      240
tatccttggc ccctttacgg caatgagggc tgtgggtggg caggggtggct cctgtcccct      300
cgcggggtctc ggccgtcttg gggccctaata gatccccggc ggaggtcccg caacctgggt      360
aagggtcatcg ataccctaac atgcggcttc gccgacctca tgggatacat cccgcttgta      420
ggcgcccccg tgggtggcgt cgccagagcc ctggcacacg gtgttagggc tgtggaagac      480
gggatcaact acgcaacag                                     499
```

<210> 164

<211> 166

<212> PRT

<213> hepatitis C virus

<400> 164

```
Met Ser Thr Asn Pro Lys Leu Gln Arg Lys Thr Lys Arg Asn Thr Asn
1          5          10          15
```

```
Arg Arg Pro Met Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly
20          25          30
```

```
Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala
```

35	40	45
Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro		
50	55	60
Ile Pro Lys Ala Arg Arg Ser Glu Gly Arg Ser Trp Ala Gln Pro Gly		
65	70	75
Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Cys Gly Trp Ala Gly Trp		
85	90	95
Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Asn Asp Pro		
100	105	110
Arg Arg Arg Ser Arg Asn Leu Gly Lys Val Ile Asp Thr Leu Thr Cys		
115	120	125
Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala Pro Val		
130	135	140
Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Ala Val Glu Asp		
145	150	155
Gly Ile Asn Tyr Ala Thr		
165		

<210> 165

<211> 499

<212> DNA

<213> hepatitis C virus

<220>

<221> misc_feature

<222> (306)..(306)

<223> "n" is any nucleotide

<220>

<221> misc_feature
<222> (313)..(313)
<223> "n" is any nucleotide

<220>

<221> misc_feature
<222> (340)..(340)
<223> "n" is any nucleotide

<400> 165
atgagcacga atcctaaacc tcaaagaaaa accaaacgta acaccaaccg ccgccctatg 60
gacgttaagt tcccaggcgg tggtcagatc gttggcggag tttacttggt gccgcgcagg 120
ggccccaggt tgggtgtgcg cgcgactcgg aagacttcgg agcggtcgca acctcgtggg 180
aggcgccaac ctatcccca ggcgcgccga accgagggca gatcctgggc gcagcccggg 240
tatccttggc ccctttacgg caatgagggc tgtgggtggg caggggtggct cctgtcccct 300
cgcggncttc ggnctgtctt gggccccaat gatccccggn ggagatcccg caacttgggt 360
aaggtcatcg ataccctaac atgcggcttc gccgacctca tgggatacat cccgcttgta 420
ggcgcccccg tgggtggcgt cgccagggcc ctggcacatg gtgttagggc tgtggaagac 480
gggatcaatt atgcaacag 499

<210> 166
<211> 126
<212> PRT
<213> hepatitis C virus

<220>

<221> MISC_FEATURE
<222> (102)..(102)
<223> "Xaa" is any amino acid

<220>

<221> MISC_FEATURE

<222> (105)..(105)

<223> "Xaa" is any amino acid

<220>

<221> MISC_FEATURE

<222> (114)..(114)

<223> "Xaa" is any amino acid

<400> 166

Met	Ser	Thr	Asn	Pro	Lys	Pro	Gln	Arg	Lys	Thr	Lys	Arg	Asn	Thr	Asn
1				5					10					15	

Arg	Arg	Pro	Met	Asp	Val	Lys	Phe	Pro	Gly	Gly	Gly	Gln	Ile	Val	Gly
			20					25					30		

Gly	Val	Tyr	Leu	Leu	Pro	Arg	Arg	Gly	Pro	Arg	Leu	Gly	Val	Arg	Ala
		35					40					45			

Thr	Arg	Lys	Thr	Ser	Glu	Arg	Ser	Gln	Pro	Arg	Gly	Arg	Arg	Gln	Pro
	50					55					60				

Ile	Pro	Lys	Ala	Arg	Arg	Thr	Glu	Gly	Arg	Ser	Trp	Ala	Gln	Pro	Gly
65					70					75				80	

Tyr	Pro	Trp	Pro	Leu	Tyr	Gly	Asn	Glu	Gly	Cys	Gly	Trp	Ala	Gly	Trp
				85					90					95	

Leu	Leu	Ser	Pro	Arg	Xaa	Ser	Arg	Xaa	Ser	Trp	Gly	Pro	Asn	Asp	Pro
			100					105						110	

Arg	Xaa	Arg	Ser	Arg	Asn	Leu	Gly	Lys	Val	Ile	Asp	Thr	Leu
		115					120					125	

<210> 167

<211> 579

<212> DNA

<213> hepatitis C virus

<400> 167

```
acatgcggct tcgccgacct catgggatac atcccgcttg taggcgcccc cgtgggtggc      60
gtcgccaggg ccctggcaca tgggtgtagg gctgtggaag acgggatcaa ttatgcaaca      120
gggaaccttc cgggttgctc cttttctatc ttctcttgg cgctcctctc gtgcctgact      180
gttcccatat cggccgttaa ctatcgcaat gcttcgggca tttatcacat caccaatgac      240
tgcccgaatg caagcatagt gtacgagacc gaaaatcaca tcttacacct cccaggggtgc      300
gtaccctgtg tgaggactgg gaaccagtcg cgggtgttggg tggccctcac tcccacagta      360
gcgtcgccat acgccgggtgc tccgcttgag cccttgccgc gtcatgtgga cctgatggta      420
gggtgtgcca ccatgtgttc cgccctctac atcggcgact tgtgcggtgg cttattcttg      480
gtggggcaaaa tgttcacctt ccaaccgcga cgtcactgga ccactcagga ctgcaattgt      540
tccatctaca cgggccacat tacgggtcat cggatggca                               579
```

<210> 168

<211> 193

<212> PRT

<213> hepatitis C virus

<400> 168

```
Thr Cys Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala
1           5           10          15
```

```
Pro Val Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Ala Val
20           25           30
```

```
Glu Asp Gly Ile Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe
35           40           45
```

```
Ser Ile Phe Leu Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Thr Ser
50           55           60
```

Ala Val Asn Tyr Arg Asn Ala Ser Gly Ile Tyr His Ile Thr Asn Asp
65 70 75 80

Cys Pro Asn Ala Ser Ile Val Tyr Glu Thr Glu Asn His Ile Leu His
85 90 95

Leu Pro Gly Cys Val Pro Cys Val Arg Thr Gly Asn Gln Ser Arg Cys
100 105 110

Trp Val Ala Leu Thr Pro Thr Val Ala Ser Pro Tyr Ala Gly Ala Pro
115 120 125

Leu Glu Pro Leu Arg Arg His Val Asp Leu Met Val Gly Ala Ala Thr
130 135 140

Met Cys Ser Ala Leu Tyr Ile Gly Asp Leu Cys Gly Gly Leu Phe Leu
145 150 155 160

Val Gly Gln Met Phe Thr Phe Gln Pro Arg Arg His Trp Thr Thr Gln
165 170 175

Asp Cys Asn Cys Ser Ile Tyr Thr Gly His Ile Thr Gly His Arg Met
180 185 190

Ala

<210> 169

<211> 579

<212> DNA

<213> hepatitis C virus

<400> 169

acatgcggct tcgccgacct catgggatac atcccgcttg taggcgcccc cgtgggtggc 60

gtcgccagag ccctggcaca cgggtgtagg gctgtggaag acgggatcaa ctacgcaaca 120

gggaatctcc ccggttgctc cttttctatc ttcctcttgg cacttctctc gtgcctcact 180

gttcccgcgt cgggcgttaa ctatcgcaat gcttcgggcg tttatcacat caccaacgac 240

```

tgcccgaatg cgagcatagt gtacgagacc gacaatcaca tcttacacct cccaggggtgc 300
gtaccctgtg tgaagaccgg gaaccagtcg cgggtgttggg tggccctcac tcccacagtg 360
gcgtcgctt acgtcgggtgc tccgctcgag cccttgcggc gccatgtgga cctgatggta 420
gggtgtgcca ccgtgtgctc cgccctctac gtcggcgacc tgtgcggtgg cttattcttg 480
gtaggcaaaa tggtcacctt ccaaccgcga cgccactgga cgacccagga ctgtaattgt 540
tccatctacg cagggcatat tacgggcat cggatggct 579

```

<210> 170

<211> 193

<212> PRT

<213> hepatitis C virus

<400> 170

```

Thr Cys Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala
1.          5          10          15

Pro Val Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Ala Val
          20          25          30

Glu Asp Gly Ile Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe
          35          40          45

Ser Ile Phe Leu Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Ala Ser
          50          55          60

Gly Val Asn Tyr Arg Asn Ala Ser Gly Val Tyr His Ile Thr Asn Asp
65          70          75          80

Cys Pro Asn Ala Ser Ile Val Tyr Glu Thr Asp Asn His Ile Leu His
          85          90          95

Leu Pro Gly Cys Val Pro Cys Val Lys Thr Gly Asn Gln Ser Arg Cys
          100          105          110

Trp Val Ala Leu Thr Pro Thr Val Ala Ser Pro Tyr Val Gly Ala Pro
          115          120          125

```


Leu Glu Pro Leu Arg Arg His Val Asp Leu Met Val Gly Ala Ala Thr
 130 135 140

Val Cys Ser Ala Leu Tyr Val Gly Asp Leu Cys Gly Gly Leu Phe Leu
 145 150 155 160

Val Gly Gln Met Phe Thr Phe Gln Pro Arg Arg His Trp Thr Thr Gln
 165 170 175

Asp Cys Asn Cys Ser Ile Tyr Ala Gly His Ile Thr Gly His Arg Met
 180 185 190

Ala

<210> 171

<211> 579

<212> DNA

<213> hepatitis C virus

<400> 171
 acatgcggct tcgccgacct catgggatac atcccgcttg tgggcgcccc tggtggtggc 60
 gtcgccagag cccttgcgca cggcgtcagg gctgtggaag acgggattaa ctatgcaaca 120
 gggaaccttc ctggttgctc cttttctatc ttcttctctg cacttctctc gtgcctgact 180
 gtccccgcct cggctgtgca ttatcacaac acctcgggca tctaccacct caccaatgac 240
 tgccctaact ctagcatagt ctttgaggca gtccatcaca tcttgcacct tccaggatgc 300
 gtcccttggtg taagaactgg gaaccagtct cgggtgctggg tagccttgac cccacgctg 360
 gccgcgcat accttggcgc tccactcgag tccatgcggc gtcacgtgga tttgatggtg 420
 ggcaactgcta cattgtgctc agcactctac gttggggacc tgtgcggggg catattccta 480
 gcggggccaga tggtcacctt ccggccccgc ctccattgga ccaccagga gtgcaattgt 540
 tccacctatc cgggccacat cacgggtcat agaatggcg 579

<210> 172

<211> 193

<212> PRT

<213> hepatitis C virus

<400> 172

Thr Cys Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala
1 5 10 15

Pro Val Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Ala Val
20 25 30

Glu Asp Gly Ile Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe
35 40 45

Ser Ile Phe Leu Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Ala Ser
50 55 60

Ala Val His Tyr His Asn Thr Ser Gly Ile Tyr His Leu Thr Asn Asp
65 70 75 80

Cys Pro Asn Ser Ser Ile Val Phe Glu Ala Val His His Ile Leu His
85 90 95

Leu Pro Gly Cys Val Pro Cys Val Arg Thr Gly Asn Gln Ser Arg Cys
100 105 110

Trp Val Ala Leu Thr Pro Thr Leu Ala Ala Pro Tyr Leu Gly Ala Pro
115 120 125

Leu Glu Ser Met Arg Arg His Val Asp Leu Met Val Gly Thr Ala Thr
130 135 140

Leu Cys Ser Ala Leu Tyr Val Gly Asp Leu Cys Gly Gly Ile Phe Leu
145 150 155 160

Ala Gly Gln Met Phe Thr Phe Arg Pro Arg Leu His Trp Thr Thr Gln
165 170 175

Glu Cys Asn Cys Ser Thr Tyr Pro Gly His Ile Thr Gly His Arg Met
180 185 190

Ala

<210> 173

<211> 579

<212> DNA

<213> hepatitis C virus

<400> 173

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acgtgcggtt cgcgcgacct catgggatac atcccgctcg taggcgcccc tgtgggtggc      60
gtcgccaggg ccttggcgca tggcgtcagg gctgtggagg acgggataaa ctatgcaaca      120
gggaaccttc ctggttgctc tttttctatc ttccttctgg cacttctctc gtgcctgact      180
gtccccgcct cagctgtgca ttatcacaac acctegggca tctatcacat cactaatgac      240
tgccctaact ctagcatagt ctttgaggca gagcatcaca tcttgcattc tccaggatgc      300
gtcccctgtg tgagaactgg gaaccagtca cgatgctgga tagccttgac ccctacgttg      360
gccgcgccac acattggcgc tccacttgag tccatgcgac gtcattgtgga tttgatggta      420
ggcactgcca cattgtgctc cgcactctac attggagatc tgtgaggagg catatttcta      480
gtgggccaga tggtcaactt caggccccgc ctgcactgga ccaccagga gtgcaattgt      540
tccatctatc caggccacat cacgggtcac agaattggcg      579
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<210> 174

<211> 193

<212> PRT

<213> hepatitis C virus

<400> 174

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Thr Cys Gly Ser Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala
1           5           10          15
```

```
Pro Val Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Ala Val
          20          25          30
```

```
Glu Asp Gly Ile Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe
```

35

40

45

Ser Ile Phe Leu Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Ala Ser
50 55 60

Ala Val His Tyr His Asn Thr Ser Gly Ile Tyr His Ile Thr Asn Asp
65 70 75 80

Cys Pro Asn Ser Ser Ile Val Phe Glu Ala Glu His His Ile Leu His
85 90 95

Leu Pro Gly Cys Val Pro Cys Val Arg Thr Gly Asn Gln Ser Arg Cys
100 105 110

Trp Ile Ala Leu Thr Pro Thr Leu Ala Ala Pro His Ile Gly Ala Pro
115 120 125

Leu Glu Ser Met Arg Arg His Val Asp Leu Met Val Gly Thr Ala Thr
130 135 140

Leu Cys Ser Ala Leu Tyr Ile Gly Asp Leu Cys Gly Gly Ile Phe Leu
145 150 155 160

Val Gly Gln Met Phe Asn Phe Arg Pro Arg Leu His Trp Thr Thr Gln
165 170 175

Glu Cys Asn Cys Ser Ile Tyr Pro Gly His Ile Thr Gly His Arg Met
180 185 190

Ala

<210> 175

<211> 579

<212> DNA

<213> hepatitis C virus

<400> 175

acgtgcggct ttgccgacct catgggatac atcccgctcg tgggcgcccc tgtgggtggc

60

gtcgccaggg ccttggcaca tgggtgtcagg gccgtggagg acgggattaa ctatgcaaca 120
 gggaatcttc ccggttgctc cttttctatc ttccttctag cacttctctc gtgcttgact 180
 gtccccgcct cggcgcagca ctaccggaac atctcgggca tttatcacgt caccaatgac 240
 tgcccgaact ctagtatagt gtatgaagct gaccatcata tcatgcatct accagggtgt 300
 gtgccttgcg tgagaaccgg gaacacctcg cgctgctggg ttcctttaac acccactgtg 360
 gctgccccct atgttggcgc gccgctcgaa tccatgcggc ggcacgtgga cttaatggtg 420
 ggtgccgccca ccgtctgctc ggccctgtac atcggagacc tttgcggagg tgtcttctg 480
 gtcgggcaga tgttcacctt ccggccgcgc cgccattgga ctaccagga ctgcaactgc 540
 tctatctatg atggccacat caccggccat agaatggct 579

<210> 176

<211> 193

<212> PRT

<213> hepatitis C virus

<400> 176

Thr Cys Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala

1 5 10 15

Pro Val Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Ala Val
20 25 30

Glu Asp Gly Ile Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe
35 40 45

Ser Ile Phe Leu Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Ala Ser
50 55 60

Ala Gln His Tyr Arg Asn Ile Ser Gly Ile Tyr His Val Thr Asn Asp
65 70 75 80

Cys Pro Asn Ser Ser Ile Val Tyr Glu Ala Asp His His Ile Met His
85 90 95

Leu Pro Gly Cys Val Pro Cys Val Arg Thr Gly Asn Thr Ser Arg Cys

100

105

110

Trp Val Pro Leu Thr Pro Thr Val Ala Ala Pro Tyr Val Gly Ala Pro
 115 120 125

Leu Glu Ser Met Arg Arg His Val Asp Leu Met Val Gly Ala Ala Thr
 130 135 140

Val Cys Ser Ala Leu Tyr Ile Gly Asp Leu Cys Gly Gly Val Phe Leu
 145 150 155 160

Val Gly Gln Met Phe Thr Phe Arg Pro Arg Arg His Trp Thr Thr Gln
 165 170 175

Asp Cys Asn Cys Ser Ile Tyr Asp Gly His Ile Thr Gly His Arg Met
 180 185 190

Ala

<210> 177

<211> 579

<212> DNA

<213> hepatitis C virus

<400> 177

acgtgcgggt tgcggacct catgggatac atcccgctcg tgggcgctcc agtaggaggc	60
gtcgccagag ccttggcgca tggcgtcagg gctgtggagg acgggatcaa ttacgcaaca	120
gggaaccttc ccggtgctc cttttctatc ttcctcttgg tacttctctc gcgcctaact	180
gtcccagcgt ctgctcagca ctaccggaat gcatcgggca tctaccatgt caccaacgac	240
tgcccgaact ccagtattgt gtatgaagcc gaccatcaca tcatgcacct acccggtgt	300
gtgccctgtg taagaactgg gaatgtctcg cggttctgga ttcctttaac acccactgta	360
gccgtcccct acctcggggc tccacttacg tctgtacggc agcatgtgga cctgatggtg	420
ggggcggccca ccttatgctc tgccctctac atcggagacc attgcggagg tgtcttcttg	480
gcagggcaga tggtcagttt ccaaccccg cgctattgga ctaccagga ttgcaactgt	540
tccatctatg tgggccacat caccggccac aggatggcc	579

<210> 178

<211> 193

<212> PRT

<213> hepatitis C virus

<400> 178

Thr Cys Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala
1 5 10 15

Pro Val Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Ala Val
20 25 30

Glu Asp Gly Ile Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe
35 40 45

Ser Ile Phe Leu Leu Val Leu Leu Ser Arg Leu Thr Val Pro Ala Ser
50 55 60

Ala Gln His Tyr Arg Asn Ala Ser Gly Ile Tyr His Val Thr Asn Asp
65 70 75 80

Cys Pro Asn Ser Ser Ile Val Tyr Glu Ala Asp His His Ile Met His
85 90 95

Leu Pro Gly Cys Val Pro Cys Val Arg Thr Gly Asn Val Ser Arg Cys
100 105 110

Trp Ile Pro Leu Thr Pro Thr Val Ala Val Pro Tyr Leu Gly Ala Pro
115 120 125

Leu Thr Ser Val Arg Gln His Val Asp Leu Met Val Gly Ala Ala Thr
130 135 140

Leu Cys Ser Ala Leu Tyr Ile Gly Asp His Cys Gly Gly Val Phe Leu
145 150 155 160

Ala Gly Gln Met Val Ser Phe Gln Pro Arg Arg His Trp Thr Thr Gln
165 170 175

Asp Cys Asn Cys Ser Ile Tyr Val Gly His Ile Thr Gly His Arg Met
 180 185 190

Ala

<210> 179

<211> 579

<212> DNA

<213> hepatitis C virus

<220>

<221> misc_feature

<222> (568)..(579)

<223> "n" is any nucleotide

<400> 179

acctgctggct tgcgcgacct catgggatac atcccgctcg taggcgcccc cgtgggaggc	60
gtcgccagar ctctggcgca tggcgtcagg gctctggaag acgggatcaa ttatgcaaca	120
gggaatcttc ctggttgctc tttctctatc tcccttcttg aacttctctc gtgcctgact	180
gttcccgctt cagccatcca ctatcgcaat gcttcggacg gttattatat caccaatgat	240
tgcccgaact ctagcatagt gtatgaagcc gagaaccaca tcttgcacct tccgggggtgt	300
ataccctgtg tgaagaccgg gaatcagtcg cgggtgctggg tggctctcac cccacgctg	360
gcggccccac acctacgtgc tccgctttcg tccttacggg cgcattgtgga cctaattggtg	420
ggggccgcca cggcatgctc cgctttttac attggagatc tgtgcggggg tgtgtttttg	480
gcgggccaac tgttcactat ccggccacgc attcatgaaa ccactcagga ctgcaattgc	540
tccatctact cagggcacat cacgggtnnn nnnnnnnnn	579

<210> 180

<211> 193

<212> PRT

<213> hepatitis C virus

<220>

<221> MISC_FEATURE

<222> (24) .. (24)

<223> "Xaa" is any amino acid

<220>

<221> MISC_FEATURE

<222> (190) .. (193)

<223> "Xaa" is any amino acid

<400> 180

Thr Cys Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala
1 5 10 15

Pro Val Gly Gly Val Ala Arg Xaa Leu Ala His Gly Val Arg Ala Leu
20 25 30

Glu Asp Gly Ile Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe
35 40 45

Ser Ile Ser Leu Leu Glu Leu Leu Ser Cys Leu Thr Val Pro Ala Ser
50 55 60

Ala Ile His Tyr Arg Asn Ala Ser Asp Gly Tyr Tyr Ile Thr Asn Asp
65 70 75 80

Cys Pro Asn Ser Ser Ile Val Tyr Glu Ala Glu Asn His Ile Leu His
85 90 95

Leu Pro Gly Cys Ile Pro Cys Val Lys Thr Gly Asn Gln Ser Arg Cys
100 105 110

Trp Val Ala Leu Thr Pro Thr Leu Ala Ala Pro His Leu Arg Ala Pro
115 120 125

Leu Ser Ser Leu Arg Ala His Val Asp Leu Met Val Gly Ala Ala Thr
 130 135 140

Ala Cys Ser Ala Phe Tyr Ile Gly Asp Leu Cys Gly Gly Val Phe Leu
 145 150 155 160

Ala Gly Gln Leu Phe Thr Ile Arg Pro Arg Ile His Glu Thr Thr Gln
 165 170 175

Asp Cys Asn Cys Ser Ile Tyr Ser Gly His Ile Thr Gly Xaa Xaa Xaa
 180 185 190

Xaa

<210> 181

<211> 579

<212> DNA

<213> hepatitis C virus

<220>

<221> misc_feature

<222> (152)..(152)

<223> "n" is any nucleotide

<400> 181
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 gtcgccagag ccctggcgca cgggtgtagg gctgtggagg acgggattaa ctacgcaaca 120
 gggaatcttc ctggttgctc tttctctatc tnccttctgg cacttctctc gtgcctgact 180
 gtcccggcct cggctcagca ctaccggaat gtctcgggca tctaccacgt caccaatgat 240
 tgcccgaatt ccagcatagt gtatgaagcc gatcaccaca tcatgcactt accaggggtgc 300
 ataccttgcg tgaggaccgg gaacgtttcg cgctgctggg tatctctgac acctactgtg 360
 gctgctccct acctcggggc tccgcttacg tcgctacggc ggcatgtgga tttgatggtg 420
 ggtgcagcca ccctttgctc tgccctctac gtcggagacc tctgtggagg tgtcttctta 480

gtgggacaga tggtcacctt ccagccgcgc cgccactgga ccactcagga ctgcaactgc 540
tccatttacg tcggccacat cacaggccac agaattggct 579

<210> 182

<211> 193

<212> PRT

<213> hepatitis C virus

<220>

<221> MISC_FEATURE

<222> (51) .. (51)

<223> "Xaa" is any amino acid

<400> 182

Ala Cys Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala
1 5 10 15

Pro Val Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Ala Val
20 25 30

Glu Asp Gly Ile Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe
35 40 45

Ser Ile Xaa Leu Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Ala Ser
50 55 60

Ala Gln His Tyr Arg Asn Val Ser Gly Ile Tyr His Val Thr Asn Asp
65 70 75 80

Cys Pro Asn Ser Ser Ile Val Tyr Glu Ala Asp His His Ile Met His
85 90 95

Leu Pro Gly Cys Ile Pro Cys Val Arg Thr Gly Asn Val Ser Arg Cys
100 105 110

Trp Val Ser Leu Thr Pro Thr Val Ala Ala Pro Tyr Leu Gly Ala Pro
 115 120 125

Leu Thr Ser Leu Arg Arg His Val Asp Leu Met Val Gly Ala Ala Thr
 130 135 140

Leu Cys Ser Ala Leu Tyr Val Gly Asp Leu Cys Gly Gly Val Phe Leu
 145 150 155 160

Val Gly Gln Met Phe Thr Phe Gln Pro Arg Arg His Trp Thr Thr Gln
 165 170 175

Asp Cys Asn Cys Ser Ile Tyr Val Gly His Ile Thr Gly His Arg Met
 180 185 190

Ala

<210> 183

<211> 579

<212> DNA

<213> hepatitis C virus

<400> 183
 acctgcggct ttgccgacct catgggatac atcccgctcg taggcgcccc tgtgggtggc 60
 gtcgccaggg ccctagaaca cggtgttagg gctgtggagg acggtattaa ttatgcaaca 120
 gggaatctcc ccggttgctc tttttctatc tccctcttgg cacttctttc gtgcctgact 180
 gttcccacct cagccgtcaa ctatcgcaac gcctcggggc tctatcatat caccaatgac 240
 tgcccgaatt cgagcatagt gtacgaggct gactaccaca tcctacacct ccctgggtgc 300
 ttaccctgcg tgagggttgg gaatcagtca cgctgctggg tggcccttac tcccaccgtg 360
 gcgggcgctt acgttggtgc tccgctagaa tccctccgga gtcagtgtga tctgatggta 420
 ggtgctgcta ctgtgtgctc cgctctttac atcggggacc tgtgcgggtg cgtatttttg 480
 gttggtcaga tgttttcttt ccagccgcga cgccactgga ccacgcagga ctgcaattgt 540
 tctatctacg cggggcacgt tacgggccac aggatggca 579

<210> 184

<211> 193

<212> PRT

<213> hepatitis C virus

<400> 184

Thr Cys Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala
1 5 10 15

Pro Val Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Ala Val
20 25 30

Glu Asp Gly Ile Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe
35 40 45

Ser Ile Phe Leu Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Thr Ser
50 55 60

Ala Val Asn Tyr Arg Asn Ala Ser Gly Ile Tyr His Ile Thr Asn Asp
65 70 75 80

Cys Pro Asn Ala Ser Ile Val Tyr Glu Thr Glu Asn His Ile Leu His
85 90 95

Leu Pro Gly Cys Val Pro Cys Val Arg Thr Gly Asn Gln Ser Arg Cys
100 105 110

Trp Val Ala Leu Thr Pro Thr Val Ala Ser Pro Tyr Ala Gly Ala Pro
115 120 125

Leu Glu Pro Leu Arg Arg His Val Asp Leu Met Val Gly Ala Ala Thr
130 135 140

Met Cys Ser Ala Leu Tyr Ile Gly Asp Leu Cys Gly Gly Leu Phe Leu
145 150 155 160

Val Gly Gln Met Phe Thr Phe Gln Pro Arg Arg His Trp Thr Thr Gln
165 170 175

Asp Cys Asn Cys Ser Ile Tyr Thr Gly His Ile Thr Gly His Arg Met
180 185 190

Ala

<210> 185

<211> 579

<212> DNA

<213> hepatitis C virus

<400> 185

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gtcgccagag ccctggaaca tgggtgtagg gctgtggagg acggcatcaa ttatgcaaca      120
gggaatctcc ccggttgctc tttctctatc tacctcttgg cacttctctc gtgcctgact      180
gttcccacct cggccatcca ctatcgcaat gcctcgggcg tctaccacgt caccaatgac      240
tgcccgaact cgagcatagt gtacgaggcc gaccaccaca tcctacacct tccaggggtgc      300
ttaccctgtg tgagggttgg gaatcagtca cgttggttggg tggccctctc tcccaccgtg      360
gcggcgcctt acatcggtgc tccagttgaa tccttcgga gacacgtgga catgatggtg      420
ggcgctgcta ctgtgtgctc cgctctctat attggggact tgtgtggtgg cgtattcttg      480
gttggtcaga tgttttcttt ccggccacga cgccactgga ctacgcagga ctgcaattgt      540
tccatctacg cggggcacat cactggccac ggaatggca                               579
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<210> 186

<211> 193

<212> PRT

<213> hepatitis C virus

<400> 186

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Thr Cys Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala
1           5           10          15
```

```
Pro Val Gly Gly Val Ala Arg Ala Leu Glu His Gly Val Arg Ala Val
          20          25          30
```

Glu Asp Gly Ile Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe
35 40 45

Ser Ile Tyr Leu Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Thr Ser
50 55 60

Ala Ile His Tyr Arg Asn Ala Ser Gly Val Tyr His Val Thr Asn Asp
65 70 75 80

Cys Pro Asn Ser Ser Ile Val Tyr Glu Ala Asp His His Ile Leu His
85 90 95

Leu Pro Gly Cys Leu Pro Cys Val Arg Val Gly Asn Gln Ser Arg Cys
100 105 110

Trp Val Ala Leu Ser Pro Thr Val Ala Ala Pro Tyr Ile Gly Ala Pro
115 120 125

Val Glu Ser Phe Arg Arg His Val Asp Met Met Val Gly Ala Ala Thr
130 135 140

Val Cys Ser Ala Leu Tyr Ile Gly Asp Leu Cys Gly Gly Val Phe Leu
145 150 155 160

Val Gly Gln Met Phe Ser Phe Arg Pro Arg Arg His Trp Thr Thr Gln
165 170 175

Asp Cys Asn Cys Ser Ile Tyr Ala Gly His Ile Thr Gly His Gly Met
180 185 190

Ala

<210> 187

<211> 579

<212> DNA

<213> hepatitis C virus

<400> 187

acttgccggct ttgccgacct catgggatac atcccgctcg taggcgcccc tgtgggtggc

60

gtcgccaggg ccctggcaca cggtgttagg gctgtggagg acgggatcaa ttatgcgaca 120
 gggaatcttc ccggttgctc tttctctatc ttcctcttgg cacttctttc gtgcctgact 180
 gttcccacct cggccgtcaa ctatcgcaat gcctcgggca tctatcacat caccaatgac 240
 tgcccgaact cgagcatagt gtacgagacc gagcaccaca tcctacacct cccagggtgt 300
 ttaccctgcg tgagggttgg gaatcagtca cgctgctggg tggccctcac tcccaccgtg 360
 gcgggcgctt acatcggcgc tccgcttgaa tccctccgga gtcattgtgga tctgatggta 420
 ggtgccgcta ctgcgtgctc cgctctttac atcggagacc tgtgcggtgg cgtatttttg 480
 gttggtcaga tgttctcttt ccagccgagg cgccactgga ctacgcagga ctgcaattgt 540
 tccatctacg cggggcacgt tacgggccac aggatggca 579

<210> 188

<211> 193

<212> PRT

<213> hepatitis C virus

<400> 188

Thr Cys Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala
 1 5 10 15

Pro Val Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Ala Val
 20 25 30

Glu Asp Gly Ile Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe
 35 40 45

Ser Ile Phe Leu Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Thr Ser
 50 55 60

Ala Val Asn Tyr Arg Asn Ala Ser Gly Ile Tyr His Ile Thr Asn Asp
 65 70 75 80

Cys Pro Asn Ser Ser Ile Val Tyr Glu Thr Glu His His Ile Leu His
 85 90 95

Leu Pro Gly Cys Leu Pro Cys Val Arg Val Gly Asn Gln Ser Arg Cys

100

105

110

Trp Val Ala Leu Thr Pro Thr Val Ala Ala Pro Tyr Ile Gly Ala Pro
 115 120 125

Leu Glu Ser Leu Arg Ser His Val Asp Leu Met Val Gly Ala Ala Thr
 130 135 140

Ala Cys Ser Ala Leu Tyr Ile Gly Asp Leu Cys Gly Gly Val Phe Leu
 145 150 155 160

Val Gly Gln Met Phe Ser Phe Gln Pro Arg Arg His Trp Thr Thr Gln
 165 170 175

Asp Cys Asn Cys Ser Ile Tyr Ala Gly His Val Thr Gly His Arg Met
 180 185 190

Ala

<210> 189

<211> 579

<212> DNA

<213> hepatitis C virus

<400> 189

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 gggaatcttc ccggttgctc tttctctatc ttctctctgg cacttctttc gtgcctcact 180
 gtcccagcgt cagctgagca ctaccggaat gttcgggca tctatcacat caccaatgac 240
 tgtccgaatt ccagcgtagt ctatgaaact gaccaccata tattgcactt gccgggggtgc 300
 gtaccctgcg tgagggccgg gaacgtgtct cgttgctgga cgccggtaac acctacggtg 360
 gctgccgtat ccatggacgc tccgctcgag tccttcgggc ggcattgtgga cctaattgta 420
 ggtgcggcca ccgtgtgttc tgtcctctat gttggagacc tctgtggagg tgctttccta 480
 gtggggcaga tgttcacctt ccagccgcgt cgccactgga ccacgcagga ttgtaattgc 540
 tccatctata ctggccatat caccggccac aggatggcg 579

<210> 190

<211> 193

<212> PRT

<213> hepatitis C virus

<400> 190

Thr Cys Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala
1 5 10 15

Pro Val Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Ala Val
20 25 30

Glu Asp Gly Ile Asn Tyr Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe
35 40 45

Ser Ile Phe Leu Leu Ala Leu Leu Ser Cys Leu Thr Val Pro Ala Ser
50 55 60

Ala Glu His Tyr Arg Asn Ala Ser Gly Ile Tyr His Ile Thr Asn Asp
65 70 75 80

Cys Pro Asn Ser Ser Val Val Tyr Glu Thr Asp His His Ile Leu His
85 90 95

Leu Pro Gly Cys Val Pro Cys Val Arg Ala Gly Asn Val Ser Arg Cys
100 105 110

Trp Thr Pro Val Thr Pro Thr Val Ala Ala Val Ser Met Asp Ala Pro
115 120 125

Leu Glu Ser Phe Arg Arg His Val Asp Leu Met Val Gly Ala Ala Thr
130 135 140

Val Cys Ser Val Leu Tyr Val Gly Asp Leu Cys Gly Gly Ala Phe Leu
145 150 155 160

Val Gly Gln Met Phe Thr Phe Gln Pro Arg Arg His Trp Thr Thr Gln
165 170 175

Asp Cys Asn Cys Ser Ile Tyr Thr Gly His Ile Thr Gly His Arg Met
 180 185 190

Ala

<210> 191

<211> 289

<212> DNA

<213> hepatitis C virus

<400> 191
 atgagcacga atcctaaacc tcaaagaaaa accaaacgta acaccaaccg ccgccccatg 60
 gacgttaagt tcccgggcgg tggccagatc gttggtggag ttacttggt gccgcgcagg 120
 ggccccaggt tgggtgtgcg cgcgactagg aagacttcgg agcggtcgca acctcgtggg 180
 agacgtcagc ctatccccaa ggcacgtcga tctgaggga ggtcctgggc tcagccccggg 240
 taccatggc ctctttacgg taatgagggt tgtgggtggg caggatggg 289

<210> 192

<211> 96

<212> PRT

<213> hepatitis C virus

<400> 192

Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn
 1 5 10 15

Arg Arg Pro Met Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly
 20 25 30

Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala
 35 40 45

Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro
 50 55 60

Ile Pro Lys Ala Arg Arg Ser Glu Gly Arg Ser Trp Ala Gln Pro Gly
65 70 75 80

Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Cys Gly Trp Ala Gly Trp
85 90 95

<210> 193

<211> 498

<212> DNA

<213> hepatitis C virus

<400> 193

atgagcacga atcctaaacc tcaaagaaaa accaaacgta acaccaaccg ccgccctatg 60
gacgtaaagt tcccgggagg tggacagatc gttggcggag tttacttggt gccgcgcagg 120
ggcccccggt tgggtgtgcg cgcgactcgg aagacttcgg agcggtcgca acctcgtggc 180
aggcgtcaac ctatcccaa ggcgcgccgg tccgagggca ggtcctgggc gcaagccggg 240
taccctggc ccctctatgg caatgagggc tgtgggtggg cagggtggct cctgtctcct 300
cgcggtcttc ggccatcttg gggcccaa atgatcccggc ggagatcgcg caatctgggt 360
aaggatcatc ataccctgac gtgcggcttc gccgacctca tgggatacat cccgctcgtg 420
ggcgcccccg tcggggggcg cgccagggcc ctggcgcatg gcgtcagggc tgtggaggac 480
gggattaact atcgacag 498

<210> 194

<211> 166

<212> PRT

<213> hepatitis C virus

<400> 194

Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn
1 5 10 15

Arg Arg Pro Met Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly

20

25

30

Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala
 35 40 45

Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro
 50 55 60

Ile Pro Lys Ala Arg Arg Ser Glu Gly Arg Ser Trp Ala Gln Ala Gly
 65 70 75 80

Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Cys Gly Trp Ala Gly Trp
 85 90 95

Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Asn Asp Pro
 100 105 110

Arg Arg Arg Ser Arg Asn Leu Gly Lys Val Ile Asp Thr Leu Thr Cys
 115 120 125

Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Leu Val Gly Ala Pro Val
 130 135 140

Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Ala Val Glu Asp
 145 150 155 160

Gly Ile Asn Tyr Arg Gln
 165

<210> 195

<211> 579

<212> DNA

<213> hepatitis C virus

<400> 195
 acgtgcggat tcgccgacct cgtgggggtac atcccgctcg taggcggccc cgttgggggc 60
 gtcgcaaggg ctctcgaca tgggtgtgagg gttcttgagg acggggtgaa ttatgcaaca 120
 gggaatctgc ctggttgctc tttctctatc ttcattcttg cacttctctc gtgcctcact 180
 gtcccggcct ctgcagttcc ctaccgaaat gcctctggga tctatcatgt caccaatgat 240

Thr Ala Pro Leu Arg Arg Ala Val Asp Tyr Leu Val Gly Gly Ala Ala
130 135 140

Leu Cys Ser Ala Leu Tyr Val Gly Asp Ala Cys Gly Ala Leu Phe Leu
145 150 155 160

Val Gly Gln Met Phe Thr Tyr Arg Pro Arg Gln His Ala Thr Val Gln
165 170 175

Asp Cys Asn Cys Ser Ile Tyr Ser Gly His Val Thr Gly His Gln Met
180 185 190

Ala

<210> 197

<211> 1485

<212> DNA

<213> hepatitis C virus

<220>

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<222> (787)..(787)

<223> "n" is any nucleotide

<220>

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<222> (1011)..(1011)

<223> "n" is any nucleotide

<220>

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<222> (1444)..(1444)

<223> "n" is any nucleotide

<400> 197

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gctgatggag	ggtgttcagg	cggcgcgcat	gacgtgatca	tatgcgacga	gtgccattcc	120
caggacgcca	ccaccattct	tgggataggc	actgtccttg	accaggcaga	gacggctgga	180
gctaggctcg	tcgtcttggc	cacggccacc	cctcccggca	gtgtgacaac	gccccacccc	240
aacatcgagg	aagtggccct	gcctcaggag	ggggaggttc	ccttctacgg	cagagccatt	300
ccccttgctt	ttataaaggg	tggtaggcat	ctcatcttct	gccattccaa	gaaaaaatgt	360
gatgaactcg	ccaagcaact	gaccagcctg	ggcgtgaacg	ccgtggcata	ttatagaggt	420
ctagacgtcg	ccgtcatacc	cacaacagga	gacgtggctg	tgtgcagcac	cgacgcgctc	480
atgacgggat	tcaccggcga	ctttgattct	gtcatagact	gcaactccgc	cgtcactcag	540
acggtggact	tcagtctgga	tcccactttt	accattgaga	ctaccacagt	gccccaggac	600
gcagtgtcca	gaagccagcg	ttggggccgc	acggggagag	gtaggcacgg	catataccgg	660
tatgtctcgg	ctggagagag	accgtctggc	atgttcgact	ccgtggtgct	ctgtgagtgc	720
tacgatgccg	gatgtgcatg	gtacgatctg	actcctgccg	agactaccgt	gaggttgcgc	780
gcttacntaa	acacccccgg	gctccctgtc	tgtcaggacc	atttggaatt	ctgggagggg	840
gtgttcacgg	ggctcactaa	catcgacgct	cacatgctgt	cacagaccaa	acagggtggg	900
gagaatttcc	cataccttgt	agcgtaccaa	gcaacagtct	gtgttcgcgc	gaaagcgccc	960
ccccccagct	gggacacaat	gtggaaatgc	atgtcccgtc	tcaaaccgac	nttaactggc	1020
cctactcccc	tcttgtacag	gctggggccc	gtccagaatg	agatcacact	gacgcacccc	1080
atcaccaagt	acattatggc	ttgcatgtct	gcggacttgg	aggtcattac	cagcacttgg	1140
gttctggtgg	ggggcgttgt	ggcggccctg	gcggcctact	gcttgacggg	gggttcggta	1200
gccatagtcg	gtaggatcat	cctctctggg	aaacctgcca	tcattcccga	tagggaggta	1260
ttataaccagc	aatttgatga	gatggaggag	tgctcggcct	cgttgcccta	tatggacgaa	1320
acacgtgcc	ttgccggaca	attcaaagag	aaagtgctcg	gcttcacag	cacgaccggc	1380
cagaaggctg	aaactctgaa	gccggcagcc	acgtctgtgt	ggaacaaggc	tgagcagttc	1440
tggnccacat	acatgtggaa	cttcatcagt	gggatacaat	aataag		1485

<210> 198
<211> 484
<212> PRT
<213> hepatitis C virus

<220>
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<222> (263)..(263)
<223> "Xaa" is any amino acid

<220>
<221> MISC_FEATURE
<222> (337)..(337)
<223> "Xaa" is any amino acid

<220>
<221> MISC_FEATURE
<222> (482)..(482)
<223> "Xaa" is any amino acid

<400> 198

Cys Ala Arg Thr Ile Thr Thr Gly Ala Ser Ile Thr Tyr Ser Thr Tyr
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Gly Lys Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala His Asp Val
20 25 30

Ile Ile Cys Asp Glu Cys His Ser Gln Asp Ala Thr Thr Ile Leu Gly
35 40 45

Ile Gly Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val
50 55 60

Val Leu Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Thr Pro His Pro
65 70 75 80

Asn Ile Glu Glu Val Ala Leu Pro Gln Glu Gly Glu Val Pro Phe Tyr
85 90 95

Gly Arg Ala Ile Pro Leu Ala Phe Ile Lys Gly Gly Arg His Leu Ile
100 105 110

Phe Cys His Ser Lys Lys Lys Cys Asp Glu Leu Ala Lys Gln Leu Thr
115 120 125

Ser Leu Gly Val Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ala
130 135 140

Val Ile Pro Thr Thr Gly Asp Val Val Val Cys Ser Thr Asp Ala Leu
145 150 155 160

Met Thr Gly Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Ser
165 170 175

Ala Val Thr Gln Thr Val Asp Phe Ser Leu Asp Pro Thr Phe Thr Ile
180 185 190

Glu Thr Thr Thr Val Pro Gln Asp Ala Val Ser Arg Ser Gln Arg Trp
195 200 205

Gly Arg Thr Gly Arg Gly Arg His Gly Ile Tyr Arg Tyr Val Ser Ala
210 215 220

Gly Glu Arg Pro Ser Gly Met Phe Asp Ser Val Val Leu Cys Glu Cys
225 230 235 240

Tyr Asp Ala Gly Cys Ala Trp Tyr Asp Leu Thr Pro Ala Glu Thr Thr
245 250 255

Val Arg Leu Arg Ala Tyr Xaa Asn Thr Pro Gly Leu Pro Val Cys Gln
260 265 270

Asp His Leu Glu Phe Trp Glu Gly Val Phe Thr Gly Leu Thr Asn Ile
275 280 285

Asp Ala His Met Leu Ser Gln Thr Lys Gln Gly Gly Glu Asn Phe Pro
290 295 300

Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys Val Arg Ala Lys Ala Pro
305 310 315 320

Pro Pro Ser Trp Asp Thr Met Trp Lys Cys Met Leu Arg Leu Lys Pro
325 330 335

Xaa Leu Thr Gly Pro Thr Pro Leu Leu Tyr Arg Leu Gly Pro Val Gln
340 345 350

Asn Glu Ile Thr Leu Thr His Pro Ile Thr Lys Tyr Ile Met Ala Cys
355 360 365

Met Ser Ala Asp Leu Glu Val Ile Thr Ser Thr Trp Val Leu Val Gly
370 375 380

Gly Val Val Ala Ala Leu Ala Ala Tyr Cys Leu Thr Val Gly Ser Val
385 390 395 400

Ala Ile Val Gly Arg Ile Ile Leu Ser Gly Lys Pro Ala Ile Ile Pro
405 410 415

Asp Arg Glu Val Leu Tyr Gln Gln Phe Asp Glu Met Glu Glu Cys Ser
420 425 430

Ala Ser Leu Pro Tyr Met Asp Glu Thr Arg Ala Ile Ala Gly Gln Phe
435 440 445

Lys Glu Lys Val Leu Gly Phe Ile Ser Thr Thr Gly Gln Lys Ala Glu
450 455 460

Thr Leu Lys Pro Ala Ala Thr Ser Val Trp Asn Lys Ala Glu Gln Phe
465 470 475 480

Trp Xaa Thr Tyr

<210> 199

<211> 1485

<212> DNA

<213> hepatitis C virus

<220>

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<222> (684)..(684)

<223> "n" is any nucleotide

<220>

<221> misc_feature

<222> (909)..(909)

<223> "n" is any nucleotide

<220>

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<222> (1058)..(1058)

<223> "n" is any nucleotide

<220>

<221> misc_feature

<222> (1133)..(1133)

<223> "n" is any nucleotide

<400> 199

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caggacgccca ccaccattct tgggataggc actgtccttg accaggcaga gacggctgga	180
gctaggctcg tcgtcttggc cacggccacc cctcccggca gtgtgacaac gccccacccc	240
aacatcgagg aagtggccct gcctcaggag ggggaggttc ctttctacgg cagagccatt	300

ccccttgctt ttataaaggg tggtaggcat ctcattcttct gccattccaa gaaaaaatgt	360
gatgaactcg ccaagcaact gaccagcctg ggcgtgaacg ccgtggcata ttatagaggt	420
ctagacgtcg ccgtcatccc cacagcagga gacgtggctg tgtgcagcac cgacgcgctc	480
atgacgggat tcaccggcga ctttgattct gtcatagact gcaactccgc cgtcactcag	540
acggtggact tcagtctgga tcccactttt accattgaga ctaccacagt gccccaggac	600
gcagtgtcca gaagccagcg taggggcccgc acggggagag gtaggcacgg catataccgg	660
tatgtctcgg ctggagagag accntctgac atgttcgact ccgtgggtgct ctgtgagtgc	720
tacgatgccg gatgtgcgtg gtatgatctg actcctgccg agactaccgt gaggttgccg	780
gcttacataa acacccccgg gctccctgtc tgtcaggacc atttggaatt ctgggagggg	840
gtgttcacgg ggctcactaa catcgacgct cacatgctgt cacagaccaa acaggggtggg	900
gagaatttnc cataccttgt agcgtaccaa gcaacagtct gtgttcgcgc gaaagcgccc	960
ccccccagct gggacacaat gtggaaatgc atgctccgtc tcaaaccgac tttactggc	1020
cctactcccc tcttgtagag gctggggccc gtccagantg agatcacact gacgcacccc	1080
atcaccaagt acattatggc ttgcatgtct gcggacttgg aggtcattac cancacttgg	1140
gttctggtgg ggggcgttgt ggcggccctg gcggcctact gcttgacggt gggttcggtg	1200
gccatagtcg gtaggatcat cctctctggg aaacctgccg tcattcccga tagggaggca	1260
ttataaccagc aatttgatga gatggaggag tgctcgccct cgttgcccta tatggacgag	1320
acacgtgccg ttgccggaca attcaaagag aaagtgctcg gcttcatcag cacgaccggc	1380
cagaaggctg aaactctgaa gccggcagcc acgtctgtgt ggaacaaggc tgagcagttc	1440
tgggccacat acatgtggaa cttcatcagc gggatacaat aatag	1485

<210> 200

<211> 484

<212> PRT

<213> hepatitis C virus

<220>

<221> MISC_FEATURE

<222> (228) .. (228)

<223> "Xaa" is any amino acid

<220>

<221> MISC_FEATURE

<222> (303)..(303)

<223> "Xaa" is any amino acid

<220>

<221> MISC_FEATURE

<222> (353)..(353)

<223> "Xaa" is any amino acid

<220>

<221> MISC_FEATURE

<222> (378)..(378)

<223> "Xaa" is any amino acid

<400> 200

Cys	Ala	Arg	Thr	Ile	Thr	Thr	Gly	Ala	Ser	Ile	Thr	Tyr	Ser	Thr	Tyr
1				5					10					15	

Gly	Lys	Phe	Leu	Ala	Asp	Gly	Gly	Cys	Ser	Gly	Gly	Ala	Tyr	Asp	Val
			20					25					30		

Ile	Ile	Cys	Asp	Glu	Cys	His	Ser	Gln	Asp	Ala	Thr	Thr	Ile	Leu	Gly
		35					40					45			

Ile	Gly	Thr	Val	Leu	Asp	Gln	Ala	Glu	Thr	Ala	Gly	Ala	Arg	Leu	Val
	50					55					60				

Val	Leu	Ala	Thr	Ala	Thr	Pro	Pro	Gly	Ser	Val	Thr	Thr	Pro	His	Pro
65					70					75				80	

Asn Ile Glu Glu Val Ala Leu Pro Gln Glu Gly Glu Val Pro Phe Tyr

85

90

95

Gly Arg Ala Ile Pro Leu Ala Phe Ile Lys Gly Gly Arg His Leu Ile
 100 105 110

Phe Cys His Ser Lys Lys Lys Cys Asp Glu Leu Ala Lys Gln Leu Thr
 115 120 125

Ser Leu Gly Val Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ala
 130 135 140

Val Ile Pro Thr Ala Gly Asp Val Val Val Cys Ser Thr Asp Ala Leu
 145 150 155 160

Met Thr Gly Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Ser
 165 170 175

Ala Val Thr Gln Thr Val Asp Phe Ser Leu Asp Pro Thr Phe Thr Ile
 180 185 190

Glu Thr Thr Thr Val Pro Gln Asp Ala Val Ser Arg Ser Gln Arg Arg
 195 200 205

Gly Arg Thr Gly Arg Gly Arg His Gly Ile Tyr Arg Tyr Val Ser Ala
 210 215 220

Gly Glu Arg Xaa Ser Asp Met Phe Asp Ser Val Val Leu Cys Glu Cys
 225 230 235 240

Tyr Asp Ala Gly Cys Ala Trp Tyr Asp Leu Thr Pro Ala Glu Thr Thr
 245 250 255

Val Arg Leu Arg Ala Tyr Ile Asn Thr Pro Gly Leu Pro Val Cys Gln
 260 265 270

Asp His Leu Glu Phe Trp Glu Gly Val Phe Thr Gly Leu Thr Asn Ile
 275 280 285

Asp Ala His Met Leu Ser Gln Thr Lys Gln Gly Gly Glu Asn Xaa Pro
 290 295 300

Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys Val Arg Ala Lys Ala Pro

305 310 315 320

Pro Pro Ser Trp Asp Thr Met Trp Lys Cys Met Leu Arg Leu Lys Pro
325 330 335

Thr Leu Thr Gly Pro Thr Pro Leu Leu Tyr Arg Leu Gly Pro Val Gln
340 345 350

Xaa Glu Ile Thr Leu Thr His Pro Ile Thr Lys Tyr Ile Met Ala Cys
355 360 365

Met Ser Ala Asp Leu Glu Val Ile Thr Xaa Thr Trp Val Leu Val Gly
370 375 380

Gly Val Val Ala Ala Leu Ala Ala Tyr Cys Leu Thr Val Gly Ser Val
385 390 395 400

Ala Ile Val Gly Arg Ile Ile Leu Ser Gly Lys Pro Ala Ile Ile Pro
405 410 415

Asp Arg Glu Ala Leu Tyr Gln Gln Phe Asp Glu Met Glu Glu Cys Ser
420 425 430

Ala Ser Leu Pro Tyr Met Asp Glu Thr Arg Ala Ile Ala Gly Gln Phe
435 440 445

Lys Glu Lys Val Leu Gly Phe Ile Ser Thr Thr Gly Gln Lys Ala Glu
450 455 460

Thr Leu Lys Pro Ala Ala Thr Ser Val Trp Asn Lys Ala Glu Gln Phe
465 470 475 480

Trp Ala Thr Tyr

<210> 201

<211> 340

<212> DNA

<213> hepatitis C virus

<400> 201
ctccactgtg actgagagag acatcagggg cgaagaagaa gtctatcagt gttgtgatct 60
ggagcccagag gcccgcaagg taataaccgc cctcacggag agactctacg tgggcggccc 120
tatgtacaat agcaagggag acctttgcgg gtatcgagg tgccgcgcaa gcggcgata 180
taccaccagc ttcgggaaca cactgacgtg ctaccttaaa gcctcagcag ccatcagggc 240
tgcggggctg aaggactgca ccatgctggt ttgcggtgac gacttagtcg tgatcgctga 300
aagcgggtggc gtcgaggagg acaagcgagc cctcggagct 340

<210> 202

<211> 113

<212> PRT

<213> hepatitis C virus

<400> 202

Ser Thr Val Thr Glu Arg Asp Ile Arg Val Glu Glu Glu Val Tyr Gln
1 5 10 15
Cys Cys Asp Leu Glu Pro Glu Ala Arg Lys Val Ile Thr Ala Leu Thr
20 25 30
Glu Arg Leu Tyr Val Gly Gly Pro Met Tyr Asn Ser Lys Gly Asp Leu
35 40 45
Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Tyr Thr Thr Ser Phe
50 55 60
Gly Asn Thr Leu Thr Cys Tyr Leu Lys Ala Ser Ala Ala Ile Arg Ala
65 70 75 80
Ala Gly Leu Lys Asp Cys Thr Met Leu Val Cys Gly Asp Asp Leu Val
85 90 95
Val Ile Ala Glu Ser Gly Gly Val Glu Glu Asp Lys Arg Ala Leu Gly
100 105 110

Ala

<210> 203

<211> 340

<212> DNA

<213> hepatitis C virus

<400> 203

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ctccacagtg actgaaagag acatcagggg cgaggaagag gtctaccagt gttgtgacct    60
ggagcctgaa acccgcaagg taatatctgc cctcactgaa agactctatg tgggcgggtcc    120
catgcacaac agcagggggag acctatgcgg gtaccgtaga tgccgcgcga gcggcggtata    180
caccacaagc ttcgggaaca ctctgacgtg cttcctcaag gccacagcgg ccaccaaagc    240
cgctggccta aaggactgca ccatgttggt gtgtgggtgac gacttagtcg ttatcgccga    300
aagcgatggt gtcgaagagg accgccgagc cctcggagct    340
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<210> 204

<211> 113

<212> PRT

<213> hepatitis C virus

<400> 204

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Ser Thr Val Thr Glu Arg Asp Ile Arg Val Glu Glu Glu Val Tyr Gln
1          5          10          15
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```
Cys Cys Asp Leu Glu Pro Glu Thr Arg Lys Val Ile Ser Ala Leu Thr
          20          25          30
```

```
Glu Arg Leu Tyr Val Gly Gly Pro Met His Asn Ser Arg Gly Asp Leu
          35          40          45
```

```
Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Tyr Thr Thr Ser Phe
          50          55          60
```

```
Gly Asn Thr Leu Thr Cys Phe Leu Lys Ala Thr Ala Ala Thr Lys Ala
65          70          75          80
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Ala Gly Leu Lys Asp Cys Thr Met Leu Val Cys Gly Asp Asp Leu Val
85 90 95

Val Ile Ala Glu Ser Asp Gly Val Glu Glu Asp Arg Arg Ala Leu Gly
100 105 110

Ala

<210> 205

<211> 340

<212> DNA

<213> hepatitis C virus

<400> 205
ctccacggtg accgaaaggg atatcaggac cgaggaagag atctaccagt gctgcgacct 60
ggagcccga gcccgaagg tgatatccgc cctaacggaa agactctacg tgggcggtcc 120
catgtacaac tccaaggggg acctatgcgg gcaacggagg tgccgcgcaa gcggggtcta 180
caccaccagc ttcgggaaca ctgtaacgtg ttatctcaag gccgttgcgg ctactagggc 240
cgcaggtctg aaagggttgca gcatgctggt ttgtggagac gacttagtcg tcatctgcga 300
gagcggcggc gtagaggagg atgcaagagc cctccgagcc 340

<210> 206

<211> 113

<212> PRT

<213> hepatitis C virus

<400> 206

Ser Thr Val Thr Glu Arg Asp Ile Arg Thr Glu Glu Glu Ile Tyr Gln
1 5 10 15

Cys Cys Asp Leu Glu Pro Glu Ala Arg Lys Val Ile Ser Ala Leu Thr
20 25 30

Glu Arg Leu Tyr Val Gly Gly Pro Met Tyr Asn Ser Lys Gly Asp Leu

35

40

45

Cys Gly Gln Arg Arg Cys Arg Ala Ser Gly Val Tyr Thr Thr Ser Phe
 50 55 60

Gly Asn Thr Val Thr Cys Tyr Leu Lys Ala Val Ala Ala Thr Arg Ala
 65 70 75 80

Ala Gly Leu Lys Gly Cys Ser Met Leu Val Cys Gly Asp Asp Leu Val
 85 90 95

Val Ile Cys Glu Ser Gly Gly Val Glu Glu Asp Ala Arg Ala Leu Arg
 100 105 110

Ala

<210> 207

<211> 340

<212> DNA

<213> hepatitis C virus

<400> 207

ctccacggtg actgaaaggg acattagggt cgaggaagag atctaccagt gctgtgacct 60
 ggagcccagag gcacgcaagg tgatatccgc tctcacagaa agactctaca agggcgggccc 120
 catgtataac agcaaggggg acctatgcgg gcttcggagg tgccgcgcaa gcgggggtata 180
 caccacaagc ttcgggaaca cggtgacatg ctaccttaaa gccacagcag ccaccagggc 240
 tgcagggctg aaagattgca ctatgctggt atgcggtgac gacttagtcg ttattgccga 300
 aagcgggtggc gtggaggagg acgcccagac cctccgagcc 340

<210> 208

<211> 113

<212> PRT

<213> hepatitis C virus

<400> 208

Ser Thr Val Thr Glu Arg Asp Ile Arg Val Glu Glu Glu Ile Tyr Gln
1 5 10 15

Cys Cys Asp Leu Glu Pro Glu Ala Arg Lys Val Ile Ser Ala Leu Thr
20 25 30

Glu Arg Leu Tyr Lys Gly Gly Pro Met Tyr Asn Ser Lys Gly Asp Leu
35 40 45

Cys Gly Leu Arg Arg Cys Arg Ala Ser Gly Val Tyr Thr Thr Ser Phe
50 55 60

Gly Asn Thr Val Thr Cys Tyr Leu Lys Ala Thr Ala Ala Thr Arg Ala
65 70 75 80

Ala Gly Leu Lys Asp Cys Thr Met Leu Val Cys Gly Asp Asp Leu Val
85 90 95

Val Ile Ala Glu Ser Gly Gly Val Glu Glu Asp Ala Arg Ala Leu Arg
100 105 110

Ala

<210> 209

<211> 340

<212> DNA

<213> hepatitis C virus

<220>

<221> misc_feature

<222> (13)..(13)

<223> "n" is any nucleotide

<220>

<221> misc_feature

<222> (23)..(23)

<223> "n" is any nucleotide

<220>

<221> misc_feature

<222> (65)..(65)

<223> "n" is any nucleotide

<220>

<221> misc_feature

<222> (72)..(72)

<223> "n" is any nucleotide

<220>

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<222> (277)..(277)

<223> "n" is any nucleotide

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<222> (337)..(337)

<223> "n" is any nucleotide

<400> 209

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ggagnccgat gnccgcaagg tcatcaacgc cctcacagag agactctacg tgggcggccc 120

tatgcacaac agcaagggag acctgtgtgg catccgtaga tgccgcgcga gcggcgttta 180

caccacgagc ttcggaaaca cgctgacttg ctacctcaaa gccacagcgg ccaccagggc 240

cgcgggcttg aaggattgca ccatgctggt ctgcgngac gacctggttg tcattgctga 300

gagcattggc atagacgagg acaagcaagc cctccgnact

340

<210> 210

<211> 113

<212> PRT

<213> hepatitis C virus

<220>

<221> MISC_FEATURE

<222> (8)..(8)

<223> "Xaa" is any amino acid

<220>

<221> MISC_FEATURE

<222> (22)..(22)

<223> "Xaa" is any amino acid

<220>

<221> MISC_FEATURE

<222> (24)..(24)

<223> "Xaa" is any amino acid

<400> 210

Pro	Thr	Val	Thr	Glu	Arg	Asp	Xaa	Arg	Val	Glu	Glu	Glu	Val	Tyr	Gln
1				5				10						15	

Cys	Cys	Asn	Leu	Glu	Xaa	Asp	Xaa	Arg	Lys	Val	Ile	Asn	Ala	Leu	Thr
		20						25					30		

Glu	Arg	Leu	Tyr	Val	Gly	Gly	Pro	Met	His	Asn	Ser	Lys	Gly	Asp	Leu
		35					40					45			

Cys Gly Ile Arg Arg Cys Arg Ala Ser Gly Val Tyr Thr Thr Ser Phe
50 55 60

Gly Asn Thr Leu Thr Cys Tyr Leu Lys Ala Thr Ala Ala Thr Arg Ala
65 70 75 80

Ala Gly Leu Lys Asp Cys Thr Met Leu Val Cys Gly Asp Asp Leu Val
85 90 95

Val Ile Ala Glu Ser Ile Gly Ile Asp Glu Asp Lys Gln Ala Leu Arg
100 105 110

Thr

<210> 211

<211> 340

<212> DNA

<213> hepatitis C virus

<220>

<221> misc_feature

<222> (11)..(11)

<223> "n" is any nucleotide

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<222> (327)..(327)

<223> "n" is any nucleotide

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<222> (333)..(334)

<223> "n" is any nucleotide

<220>

<221> misc_feature

<222> (340)..(340)

<223> "n" is any nucleotide

<400> 211

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ggaaccggaa gcccgcaagg taatcacgcg cctcactgag agactctatg tgggcggacc 120

catgttcaac agcaagggag acctgtgcgg acaacgccgg tgccgcgcaa gcggcgtggt 180

caccaccagc ttcgggaaca cactgacgtg ctaccttaaa gccacagctg ctactagagc 240

agccggctta aaagattgca ccatgctggt ctgcggtgac gacttagtcg ttatttccga 300

gagcgccggt gtggaggagg atcccanaac ccnncgaccn 340

<210> 212

<211> 113

<212> PRT

<213> hepatitis C virus

<220>

<221> MISC_FEATURE

<222> (4)..(4)

<223> "Xaa" is any amino acid

<220>

<221> MISC_FEATURE

<222> (109)..(109)

<223> "Xaa" is any amino acid

<220>

<221> MISC_FEATURE

<222> (111)..(111)

<223> "Xaa" is any amino acid

<400> 212

Ser Thr Val Xaa Glu Arg Asp Ile Arg Thr Glu Gly Glu Val Tyr Gln
1 5 10 15

Cys Cys Asp Leu Glu Pro Glu Ala Arg Lys Val Ile Thr Ala Leu Thr
20 25 30

Glu Arg Leu Tyr Val Gly Gly Pro Met Phe Asn Ser Lys Gly Asp Leu
35 40 45

Cys Gly Gln Arg Arg Cys Arg Ala Ser Gly Val Phe Thr Thr Ser Phe
50 55 60

Gly Asn Thr Leu Thr Cys Tyr Leu Lys Ala Thr Ala Ala Thr Arg Ala
65 70 75 80

Ala Gly Leu Lys Asp Cys Thr Met Leu Val Cys Gly Asp Asp Leu Val
85 90 95

Val Ile Ser Glu Ser Ala Gly Val Glu Glu Asp Pro Xaa Thr Xaa Arg
100 105 110

Pro

<210> 213

<211> 340

<212> DNA

<213> hepatitis C virus

<400> 213
 ctcaacagtc accgagaacg acatccgtgt tgaggagtca atttaccaat gttgtgactt 60
 gggccccgag gccagacagg ccataaagtc gctcacagag cggctttata tcgggggtcc 120
 cctgactaat tcaaaggggc agaactgtgg ctatcgccga tgccgcgcaa gcggcgtgct 180
 gacgaccagc tgcggttaata cccttacatg ttacctaaag gcctctgcag cctgtcgagc 240
 tgccaagctc caggactgca cgatgctcgt gtgcggggac gaccttgtcg ttatctgtga 300
 aagcgcggga acccaagagg acgcggcgag cctacgagtc 340

<210> 214

<211> 113

<212> PRT

<213> hepatitis C virus

<400> 214

Ser Thr Val Thr Glu Asn Asp Ile Arg Val Glu Glu Ser Ile Tyr Gln
 1 5 10 15

Cys Cys Asp Leu Ala Pro Glu Ala Arg Gln Ala Ile Lys Ser Leu Thr
 20 25 30

Glu Arg Leu Tyr Ile Gly Gly Pro Leu Thr Asn Ser Lys Gly Gln Asn
 35 40 45

Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Leu Thr Thr Ser Cys
 50 55 60

Gly Asn Thr Leu Thr Cys Tyr Leu Lys Ala Ser Ala Ala Cys Arg Ala
 65 70 75 80

Ala Lys Leu Gln Asp Cys Thr Met Leu Val Cys Gly Asp Asp Leu Val
 85 90 95

Val Ile Cys Glu Ser Ala Gly Thr Gln Glu Asp Ala Ala Ser Leu Arg
 100 105 110

Val

<210> 215

<211> 340

<212> DNA

<213> hepatitis C virus

<400> 215

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gccccaagag gccagaactg tcatacactc gctcaccgag agactctacg tgggagggcc    120
catgataaac agcaaagggc aatcctgcgg ttacaggcgt tgccgcgcaa gcggtgtttt    180
caccaccagc atggggaata ccatgacgtg ttacatcaaa gcccttgagc cgtgtaaagc    240
cgcagggatc gtggaccccg tcatgctggt gtgtggagac gacctggtcg tcatctcgga    300
gagccagggt aacgaggagg acgagcgaaa cctgagagct                          340
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<210> 216

<211> 113

<212> PRT

<213> hepatitis C virus

<400> 216

```
Ser Thr Val Thr Glu Arg Asp Ile Arg Thr Glu Glu Ser Ile Tyr Gln
1          5          10          15
```

```
Ala Cys Ser Leu Pro Gln Glu Ala Arg Thr Val Ile His Ser Leu Thr
          20          25          30
```

```
Glu Arg Leu Tyr Val Gly Gly Pro Met Ile Asn Ser Lys Gly Gln Ser
          35          40          45
```

```
Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Phe Thr Thr Ser Met
          50          55          60
```

```
Gly Asn Thr Met Thr Cys Tyr Ile Lys Ala Leu Ala Ala Cys Lys Ala
65          70          75          80
```

Ala Gly Ile Val Asp Pro Val Met Leu Val Cys Gly Asp Asp Leu Val
85 90 95

Val Ile Ser Glu Ser Gln Gly Asn Glu Glu Asp Glu Arg Asn Leu Arg
100 105 110

Ala

<210> 217

<211> 340

<212> DNA

<213> hepatitis C virus

<400> 217
ctcgactgtc actgaacagg acatcagggg ggaagaggag atatatcaat gctgcaacct 60
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tatgtttaac agcaaggggg cccagtgtgg ttatcgccgt tgccgtgcca gtggagttct 180
gcctaccagc tttggcaaca caatcacttg ttacatcaag gccacaacgg ccgcgaaggc 240
cgcaggcctc cggaacccgg actttcttgt ctgcggagat gatctgggtcg tgggtggctga 300
gagtgatggc gtcgacgagg atagagcagc cctgagagcc 340

<210> 218

<211> 113

<212> PRT

<213> hepatitis C virus

<400> 218

Ser Thr Val Thr Glu Gln Asp Ile Arg Val Glu Glu Glu Ile Tyr Gln
1 5 10 15

Cys Cys Asn Leu Glu Pro Glu Ala Arg Lys Val Ile Ser Ser Leu Thr
20 25 30

Glu Arg Leu Tyr Cys Gly Gly Pro Met Phe Asn Ser Lys Gly Ala Gln

35

40

45

Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Leu Pro Thr Ser Phe
50 55 60

Gly Asn Thr Ile Thr Cys Tyr Ile Lys Ala Thr Thr Ala Ala Lys Ala
65 70 75 80

Ala Gly Leu Arg Asn Pro Asp Phe Leu Val Cys Gly Asp Asp Leu Val
85 90 95

Val Val Ala Glu Ser Asp Gly Val Asp Glu Asp Arg Ala Ala Leu Arg
100 105 110

Ala

<210> 219

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 219

Arg Ser Glu Gly Arg Thr Ser Trp Ala Gln
1 5 10

<210> 220

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 220

Arg Ser Glu Gly Arg Thr Ser Trp Ala Gln
1 5 10

<210> 221

<211> 10
 <212> PRT
 <213> hepatitis C virus

<400> 221

Arg Thr Glu Gly Arg Thr Ser Trp Ala Gln
 1 5 10

<210> 222
 <211> 629
 <212> DNA
 <213> hepatitis C virus

<400> 222
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 agactaagca gcagggactc aacttctcgt tcctgactgc ctaccaagcc actgtgtgcg 120
 ctgcgcgcga ggctcctccc ccaagttggg acgagatgtg gaagtgtctc gtacggctta 180
 agccaacact acatggacct acgcctcttc tatatcgggtt ggggcctgtc caaatgaaa 240
 tctgcttgac acaccccatc acaaaataca tcatggcatg catgtcagct gatctggaag 300
 taaccaccag cacctgggtt ttgcttggag gggcctcgc ggcctagcg gcctactgct 360
 tgtcagtcgg ttgtgttgtg attgtgggtc atatcgagct ggggggcaag ccggcaatcg 420
 ttccagacaa agagggtgtg tatcaacaat acgatgagat ggaagagtgc tcacaagctg 480
 ccccatatat cgaacaagct caggtaatag ctcaccagtt caaggaaaaa gtccttggat 540
 tgctgcagcg agccacccaa caacaagctg tcattgagcc catagtaact accaactggc 600
 aaaagcttga ggccttttgg cacaagcat 629

<210> 223
 <211> 209
 <212> PRT
 <213> hepatitis C virus

<400> 223

Asp Phe Trp Glu Ser Val Phe Thr Gly Leu Thr His Ile Asp Ala His
1 5 10 15

Phe Leu Ser Gln Thr Lys Gln Gln Gly Leu Asn Phe Ser Phe Leu Thr
20 25 30

Ala Tyr Gln Ala Thr Val Cys Ala Arg Ala Gln Ala Pro Pro Pro Ser
35 40 45

Trp Asp Glu Met Trp Lys Cys Leu Val Arg Leu Lys Pro Thr Leu His
50 55 60

Gly Pro Thr Pro Leu Leu Tyr Arg Leu Gly Pro Val Gln Asn Glu Ile
65 70 75 80

Cys Leu Thr His Pro Ile Thr Lys Tyr Ile Met Ala Cys Met Ser Ala
85 90 95

Asp Leu Glu Val Thr Thr Ser Thr Trp Val Leu Leu Gly Gly Val Leu
100 105 110

Ala Ala Leu Ala Ala Tyr Cys Leu Ser Val Gly Cys Val Val Ile Val
115 120 125

Gly His Ile Glu Leu Gly Gly Lys Pro Ala Ile Val Pro Asp Lys Glu
130 135 140

Val Leu Tyr Gln Gln Tyr Asp Glu Met Glu Glu Cys Ser Gln Ala Ala
145 150 155 160

Pro Tyr Ile Glu Gln Ala Gln Val Ile Ala His Gln Phe Lys Glu Lys
165 170 175

Val Leu Gly Leu Leu Gln Arg Ala Thr Gln Gln Gln Ala Val Ile Glu
180 185 190

Pro Ile Val Thr Thr Asn Trp Gln Lys Leu Glu Ala Phe Trp His Lys
195 200 205

His

<210> 224

<211> 12

<212> PRT

<213> hepatitis C virus

<400> 224

Ile His Tyr Arg Asn Ala Ser Gly Ile Tyr His Ile
1 5 10

<210> 225

<211> 12

<212> PRT

<213> hepatitis C virus

<400> 225

Val Asn Tyr Arg Asn Ala Ser Gly Ile Tyr His Ile
1 5 10

<210> 226

<211> 12

<212> PRT

<213> hepatitis C virus

<400> 226

Val Asn Tyr Arg Asn Ala Ser Gly Val Tyr His Ile
1 5 10

<210> 227

<211> 12

<212> PRT

<213> hepatitis C virus

<400> 227

Val Asn Tyr His Asn Thr Ser Gly Ile Tyr His Leu
1 5 10

<210> 228

<211> 12

<212> PRT

<213> hepatitis C virus

<400> 228

Gln His Tyr Arg Asn Ala Ser Gly Ile Tyr His Val
1 5 10

<210> 229

<211> 12

<212> PRT

<213> hepatitis C virus

<400> 229

Gln His Tyr Arg Asn Val Ser Gly Ile Tyr His Val
1 5 10

<210> 230

<211> 12

<212> PRT

<213> hepatitis C virus

<400> 230

Ile His Tyr Arg Asn Ala Ser Asp Gly Tyr Tyr Ile
1 5 10

<210> 231

<211> 12

<212> PRT

<213> hepatitis C virus

<400> 231

Leu	Gln	Val	Lys	Asn	Thr	Ser	Ser	Ser	Tyr	Met	Val
1			5						10		

<210> 232

<211> 11

<212> PRT

<213> hepatitis C virus

<400> 232

Val	Trp	Gln	Leu	Arg	Ala	Ile	Val	Leu	His	Val
1			5						10	

<210> 233

<211> 11

<212> PRT

<213> hepatitis C virus

<400> 233

Val	Tyr	Glu	Ala	Asp	Tyr	His	Ile	Leu	His	Leu
1			5						10	

<210> 234

<211> 11

<212> PRT

<213> hepatitis C virus

<400> 234

Val Tyr Glu Thr Asp Asn His Ile Leu His Leu
1 5 10

<210> 235

<211> 11

<212> PRT

<213> hepatitis C virus

<400> 235

Val Tyr Glu Thr Glu Asn His Ile Leu His Leu
1 5 10

<210> 236

<211> 11

<212> PRT

<213> hepatitis C virus

<400> 236

Val Phe Glu Thr Val His His Ile Leu His Leu
1 5 10

<210> 237

<211> 11

<212> PRT

<213> hepatitis C virus

<400> 237

Val Phe Glu Thr Glu His His Ile Leu His Leu
1 5 10

<210> 238

<211> 11

<212> PRT

<213> hepatitis C virus

<400> 238

Val	Phe	Glu	Thr	Asp	His	His	Ile	Met	His	Leu
1				5					10	

<210> 239

<211> 11

<212> PRT

<213> hepatitis C virus

<400> 239

Val	Tyr	Glu	Thr	Glu	Asn	His	Ile	Leu	His	Leu
1				5					10	

<210> 240

<211> 11

<212> PRT

<213> hepatitis C virus

<400> 240

Val	Tyr	Glu	Ala	Asp	Ala	Leu	Ile	Leu	His	Ala
1				5					10	

<210> 241

<211> 13

<212> PRT

<213> hepatitis C virus

<400> 241

Val Gln Asp Gly Asn Thr Ser Ala Cys Trp Thr Pro Val
1 5 10

<210> 242

<211> 13

<212> PRT

<213> hepatitis C virus

<400> 242

Val Lys Thr Gly Asn Gln Ser Arg Cys Trp Val Ala Leu
1 5 10

<210> 243

<211> 13

<212> PRT

<213> hepatitis C virus

<400> 243

Val Lys Thr Gly Asn Gln Ser Arg Cys Trp Val Ala Leu
1 5 10

<210> 244

<211> 13

<212> PRT

<213> hepatitis C virus

<400> 244

Val Arg Thr Gly Asn Gln Ser Arg Cys Trp Val Ala Leu
1 5 10

<210> 245

<211> 13

<212> PRT

<213> hepatitis C virus

<400> 245

Val	Lys	Thr	Gly	Asn	Gln	Ser	Arg	Cys	Trp	Ile	Ala	Leu
1				5					10			

<210> 246

<211> 13

<212> PRT

<213> hepatitis C virus

<400> 246

Val	Lys	Thr	Gly	Asn	Gln	Ser	Arg	Cys	Trp	Ile	Ala	Leu
1				5					10			

<210> 247

<211> 13

<212> PRT

<213> hepatitis C virus

<400> 247

Val	Lys	Thr	Gly	Asn	Ser	Val	Arg	Cys	Trp	Ile	Pro	Leu
1				5					10			

<210> 248

<211> 13

<212> PRT

<213> hepatitis C virus

<400> 248

Val Lys Thr Gly Asn Val Ser Arg Cys Trp Ile Ser Leu
1 5 10

<210> 249

<211> 13

<212> PRT

<213> hepatitis C virus

<400> 249

Val Arg Lys Asp Asn Val Ser Arg Cys Trp Val Gln Ile
1 5 10

<210> 250

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 250

Ala Pro Ser Phe Gly Ala Val Thr Ala Pro
1 5 10

<210> 251

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 251

Val Ser Gln Pro Gly Ala Leu Thr Lys Gly
1 5 10

<210> 252

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 252

Val	Lys	Tyr	Val	Gly	Ala	Thr	Thr	Ala	Ser
1				5					10

<210> 253

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 253

Ala	Pro	Tyr	Ile	Gly	Ala	Pro	Val	Glu	Ser
1				5					10

<210> 254

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 254

Ala	Gln	His	Leu	Asn	Ala	Pro	Leu	Glu	Ser
1				5					10

<210> 255

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 255

Ser Pro Tyr Val Gly Ala Pro Leu Glu Pro

1 5 10

<210> 256

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 256

Ser Pro Tyr Ala Gly Ala Pro Leu Glu Pro
1 5 10

<210> 257

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 257

Ala Pro Tyr Leu Gly Ala Pro Leu Glu Ser
1 5 10

<210> 258

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 258

Ala Pro Tyr Leu Gly Ala Pro Leu Glu Ser
1 5 10

<210> 259

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 259

Ala	Pro	Tyr	Val	Gly	Ala	Pro	Leu	Glu	Ser
1				5					10

<210> 260

<211> 11

<212> PRT

<213> hepatitis C virus

<400> 260

Asn	Val	Pro	Tyr	Leu	Gly	Ala	Pro	Leu	Thr	Ser
1				5					10	

<210> 261

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 261

Ala	Pro	His	Leu	Arg	Ala	Pro	Leu	Ser	Ser
1				5					10

<210> 262

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 262

Ala	Pro	Tyr	Leu	Gly	Ala	Pro	Leu	Thr	Ser
1				5					10

<210> 263

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 263

Arg	Pro	Arg	Gln	His	Ala	Thr	Val	Gln	Asp
1				5					10

<210> 264

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 264

Ser	Pro	Gln	His	His	Lys	Phe	Val	Gln	Asp
1				5					10

<210> 265

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 265

Arg	Pro	Arg	Arg	Leu	Trp	Thr	Thr	Gln	Glu
1				5					10

<210> 266

<211> 10

<212> PRT

<213> hepatitis C virus

<400> 266

Pro Pro Arg Ile His Glu Thr Thr Gln Asp
1 5 10

<210> 267

<211> 14

<212> PRT

<213> hepatitis C virus

<400> 267

Thr Ile Ser Tyr Ala Asn Gly Ser Gly Pro Ser Asp Asp Lys
1 5 10

<210> 268

<211> 19

<212> PRT

<213> hepatitis C virus

<400> 268

Ser Arg Arg Gln Pro Ile Pro Arg Ala Arg Arg Thr Glu Gly Arg Ser
1 5 10 15

Trp Ala Gln

<210> 269

<211> 1443

<212> DNA

<213> hepatitis C virus

<400> 269

accatcacca ccggagcttc tatcacatac tccacttacg gcaagttcct tgctgatgga 60

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accaccattc ttgggatagg cactgtcctt gaccaggcag agacggctgg agctaggctc	180
gtcgtcttgg ccacggccac ccctcccggc agtgtgacaa cgccccaccc caacatcgag	240
gaagtggccc tgcctcagga gggggaggtt cccttctacg gcagagccat tccccttgct	300
tttataaagg gtggtaggca tctcatcttc tgccattcca agaaaaatg tgatgaactc	360
gccaaagcaac tgaccagcct gggcgtgaac gccgtggcat attatagagg tctagacgtc	420
gccgtcatcc ccacagcagg agacgtggtc gtgtgcagca ccgacgcgct catgacggga	480
ttcaccggcg actttgattc tgtcatagac tgcaactccg ccgtcactca gacgggtggac	540
ttcagtctgg atcccacttt taccattgag actaccacag tgccccagga cgcagtgtcc	600
agaagccagc gtaggggccc cacggggaga ggtaggcacg gcatataccg gtatgtctcg	660
gctggagaga gaccgtctga catgttcgac tccgtggtgc tctgtgagtg ctacgatgcc	720
ggatgtgcgt ggtatgatct gactcctgcc gagactaccg tgaggttgcg cgcttacata	780
aacacccccg ggctccctgt ctgtcaggac catttggaat tctgggaggg ggtgttcacg	840
gggctcacta acatcgacgc tcacatgctg tcacagacca aacagggctg ggagaatttc	900
ccataccttg tagcgtacca agcaacagtc tgtgttcgcg cgaaagcgcc cccccccagc	960
tgggacacaa tgtggaaatg catgctccgt ctcaaaccga ctttaactgg ccctactccc	1020
ctcttgatga ggctggggcc cgtccagaat gagatcacac tgacgcaccc catcaccaag	1080
tacattatgg cttgcatgtc tgcggacttg gaggtcatta ccagcacttg ggttctggtg	1140
gggggcgctt tggcggccct ggcggcctac tgcttgacgg tgggttcggt agccatagtc	1200
ggtaggatca tcctctctgg gaaacctgcc atcattcccg ataggaggc attataccag	1260
caatttgatg agatggagga gtgctcggcc tcgttgccct atatggacga gacacgtgcc	1320
attgccggac aattcaaaga gaaagtgtc ggcttcatca gcacgaccgg ccagaaggct	1380
gaaactctga agccggcagc cacgtctgtg tggaacaagg ctgagcagtt ctgggccaca	1440
tac	1443

<210> 270

<211> 481

<212> PRT

<213> hepatitis C virus

<400> 270

Thr Ile Thr Thr Gly Ala Ser Ile Thr Tyr Ser Thr Tyr Gly Lys Phe
1 5 10 15

Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Val Ile Ile Cys
20 25 30

Asp Glu Cys His Ser Gln Asp Ala Thr Thr Ile Leu Gly Ile Gly Thr
35 40 45

Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu Ala
50 55 60

Thr Ala Thr Pro Pro Gly Ser Val Thr Thr Pro His Pro Asn Ile Glu
65 70 75 80

Glu Val Ala Leu Pro Gln Glu Gly Glu Val Pro Phe Tyr Gly Arg Ala
85 90 95

Ile Pro Leu Ala Phe Ile Lys Gly Gly Arg His Leu Ile Phe Cys His
100 105 110

Ser Lys Lys Lys Cys Asp Glu Leu Ala Lys Gln Leu Thr Ser Leu Gly
115 120 125

Val Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ala Val Ile Pro
130 135 140

Thr Ala Gly Asp Val Val Val Cys Ser Thr Asp Ala Leu Met Thr Gly
145 150 155 160

Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Ser Ala Val Thr
165 170 175

Gln Thr Val Asp Phe Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr Thr
180 185 190

Thr Val Pro Gln Asp Ala Val Ser Arg Ser Gln Arg Arg Gly Arg Thr
195 200 205

Gly Arg Gly Arg His Gly Ile Tyr Arg Tyr Val Ser Ala Gly Glu Arg
210 215 220

Pro Ser Asp Met Phe Asp Ser Val Val Leu Cys Glu Cys Tyr Asp Ala
225 230 235 240

Gly Cys Ala Trp Tyr Asp Leu Thr Pro Ala Glu Thr Thr Val Arg Leu
245 250 255

Arg Ala Tyr Ile Asn Thr Pro Gly Leu Pro Val Cys Gln Asp His Leu
260 265 270

Glu Phe Trp Glu Gly Val Phe Thr Gly Leu Thr Asn Ile Asp Ala His
275 280 285

Met Leu Ser Gln Thr Lys Gln Gly Gly Glu Asn Phe Pro Tyr Leu Val
290 295 300

Ala Tyr Gln Ala Thr Val Cys Val Arg Ala Lys Ala Pro Pro Pro Ser
305 310 315 320

Trp Asp Thr Met Trp Lys Cys Met Leu Arg Leu Lys Pro Thr Leu Thr
325 330 335

Gly Pro Thr Pro Leu Leu Tyr Arg Leu Gly Pro Val Gln Asn Glu Ile
340 345 350

Thr Leu Thr His Pro Ile Thr Lys Tyr Ile Met Ala Cys Met Ser Ala
355 360 365

Asp Leu Glu Val Ile Thr Ser Thr Trp Val Leu Val Gly Gly Val Val
370 375 380

Ala Ala Leu Ala Ala Tyr Cys Leu Thr Val Gly Ser Val Ala Ile Val
385 390 395 400

Gly Arg Ile Ile Leu Ser Gly Lys Pro Ala Ile Ile Pro Asp Arg Glu
405 410 415

Ala Leu Tyr Gln Gln Phe Asp Glu Met Glu Glu Cys Ser Ala Ser Leu
420 425 430

Pro Tyr Met Asp Glu Thr Arg Ala Ile Ala Gly Gln Phe Lys Glu Lys
435 440 445

Val Leu Gly Phe Ile Ser Thr Thr Gly Gln Lys Ala Glu Thr Leu Lys
450 455 460

Pro Ala Ala Thr Ser Val Trp Asn Lys Ala Glu Gln Phe Trp Ala Thr
465 470 475 480

Tyr

<210> 271

<211> 5

<212> PRT

<213> hepatitis C virus

<400> 271

Leu Glu Trp Arg Asn
1 5

<210> 272

<211> 20

<212> PRT

<213> hepatitis C virus

<400> 272

Leu Ser Gly Lys Pro Ala Ile Ile Pro Asp Arg Glu Val Leu Tyr Arg
1 5 10 15

Glu Phe Asp Glu
20

<210> 273

<211> 20

<212> PRT

<213> hepatitis C virus

<400> 273

Ser Gln His Leu Pro Tyr Ile Glu Gln Gly Met Met Leu Ala Glu Gln
1 5 10 15

Phe Lys Gln Lys
20

<210> 274

<211> 20

<212> PRT

<213> hepatitis C virus

<400> 274

Leu Ala Glu Gln Phe Lys Gln Lys Ala Leu Gly Leu Leu Gln Thr Ala
1 5 10 15

Ser Arg Gln Ala
20

<210> 275

<211> 20

<212> PRT

<213> hepatitis C virus

<400> 275

Leu Ser Gly Arg Pro Ala Val Ile Pro Asp Arg Glu Val Leu Tyr Gln
1 5 10 15

Glu Phe Asp Glu
20

<210> 276

<211> 20

<212> PRT

<213> hepatitis C virus

<400> 276

Ala Ser His Leu Pro Tyr Ile Glu Gln Gly Met Gln Leu Ala Glu Gln
1 5 10 15

Phe Lys Gln Lys
20

<210> 277

<211> 20

<212> PRT

<213> hepatitis C virus

<400> 277

Leu Ala Glu Gln Phe Lys Gln Lys Ala Leu Gly Leu Leu Gln Thr Ala
1 5 10 15

Thr Lys Gln Ala
20

<210> 278

<211> 20

<212> PRT

<213> hepatitis C virus

<400> 278

Val Asn Gln Arg Ala Val Val Ala Pro Asp Lys Glu Val Leu Tyr Glu
1 5 10 15

Ala Phe Asp Glu
20

<210> 279

<211> 20

<212> PRT

<213> hepatitis C virus

<400> 279

Ala	Ser	Arg	Ala	Ala	Leu	Ile	Glu	Glu	Gly	Gln	Arg	Ile	Ala	Glu	Met
1				5					10					15	

Leu	Lys	Ser	Lys
			20

<210> 280

<211> 20

<212> PRT

<213> hepatitis C virus

<400> 280

Ile	Ala	Glu	Met	Leu	Lys	Ser	Lys	Ile	Gln	Gly	Leu	Leu	Gln	Gln	Ala
1				5					10					15	

Ser	Lys	Gln	Ala
			20

<210> 281

<211> 20

<212> PRT

<213> hepatitis C virus

<400> 281

Leu	Asn	Asp	Arg	Val	Val	Val	Ala	Pro	Asp	Lys	Glu	Ile	Leu	Tyr	Glu
1				5					10					15	

Ala Phe Asp Glu
20

<210> 282

<211> 20

<212> PRT

<213> hepatitis C virus

<400> 282

Ala Ser Lys Ala Ala Leu Ile Glu Glu Gly Gln Arg Met Ala Glu Met
1 5 10 15

Leu Lys Ser Lys
20

<210> 283

<211> 20

<212> PRT

<213> hepatitis C virus

<400> 283

Met Ala Glu Met Leu Lys Ser Lys Ile Gln Gly Leu Leu Gln Gln Ala
1 5 10 15

Thr Arg Gln Ala
20

<210> 284

<211> 20

<212> PRT

<213> hepatitis C virus

<400> 284

Ala Ala Ser Leu Pro Tyr Met Asp Glu Thr Arg Ala Ile Ala Gly Gln
1 5 10 15

Phe Lys Glu Lys
20